

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: P517436

Luminaire Tested: HVL12-4-LD4-1HI-30-UNV-C-EDD

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: P517436
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1HI-30-UNV-C-EDD
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4705.0 lumens
Efficiency: N/A
Efficacy: 106.7 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

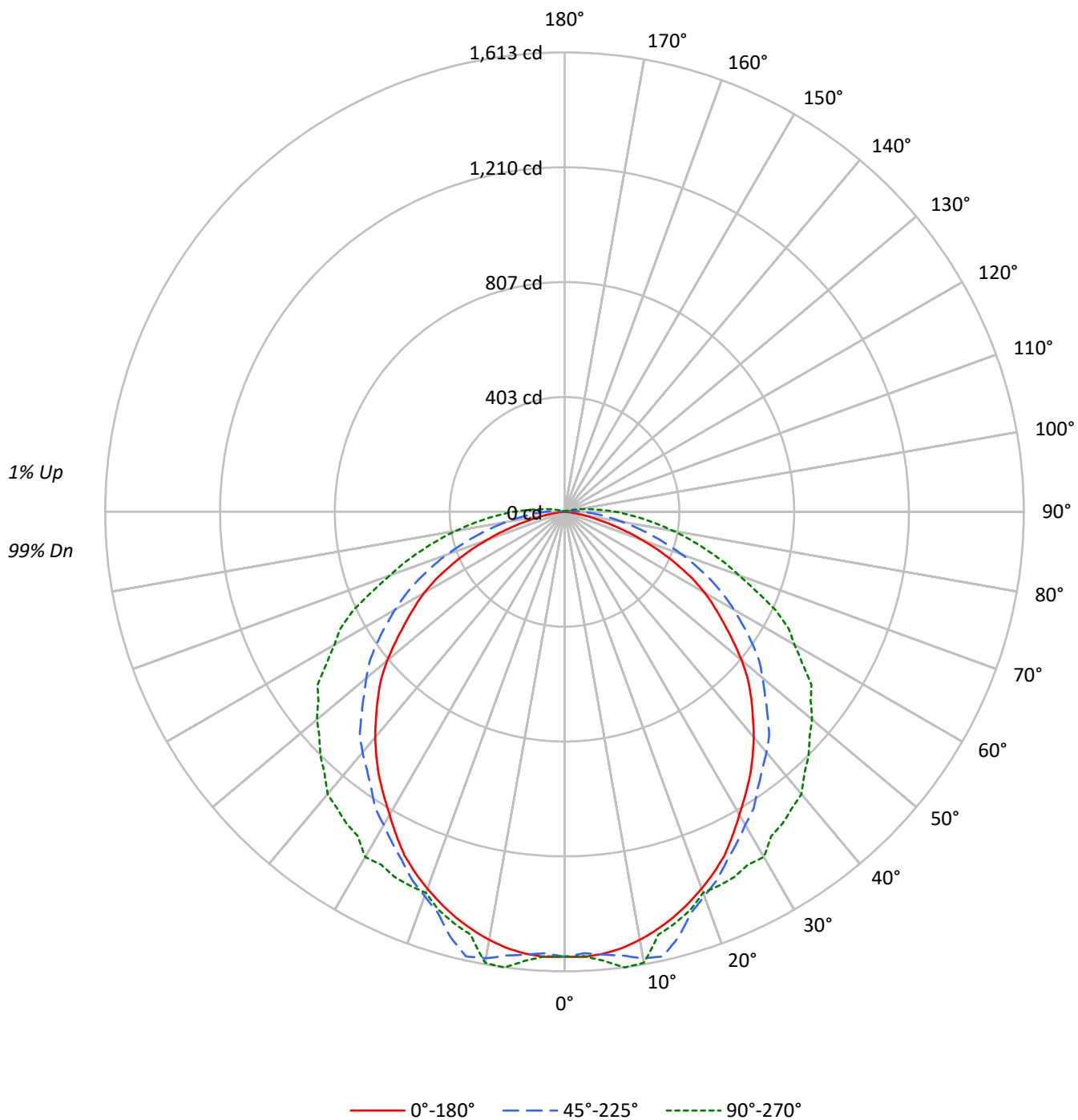
Input Watts (W): 44.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	4203	4203	4203
5°	4193	4161	4212
10°	4138	4238	4268
15°	4063	4144	3989
20°	3971	3902	3842
25°	3874	3752	3894
30°	3727	3635	3967
35°	3622	3525	3928
40°	3510	3448	3987
45°	3388	3344	3952
50°	3241	3235	3963
55°	3025	3117	4010
60°	2859	2948	3894
65°	2527	2742	3837
70°	2062	2464	3518
75°	1471	2119	3307
80°	826	1773	3097
85°	305	1416	2914

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4010 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	150.1	3.2
10°-20°	427.5	9.1
20°-30°	636.0	13.5
30°-40°	764.5	16.2
40°-50°	804.7	17.1
50°-60°	746.7	15.9
60°-70°	590.4	12.5
70°-80°	360.6	7.7
80°-90°	157.1	3.3
90°-100°	48.9	1.0
100°-110°	11.0	0.2
110°-120°	4.4	0.1
120°-130°	2.5	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°	1213.6	25.8
0°-40°	1978.1	42.0
0°-60°	3529.4	75.0
0°-90°	4637.5	98.6
90°-120°	64.3	1.4
90°-150°	67.4	1.4
90°-180°	67.0	1.4
0°-180°	4705.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1562	1562	1562	1562	1562	
5°	1558	1555	1560	1578	1582	148
15°	1475	1531	1546	1495	1496	415
25°	1330	1415	1351	1391	1414	611
35°	1135	1166	1184	1291	1335	709
45°	927	932	1008	1168	1212	715
55°	683	694	804	980	1058	614
65°	432	446	567	750	818	428
75°	164	217	316	486	516	178
85°	15	51	123	239	274	23
90°	0	15	65	151	178	1
95°	0	4	28	83	102	0
105°	0	2	6	16	23	0
115°	0	1	4	7	8	0
125°	0	1	2	5	7	0
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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CATALOG NUMBER: HVL12-4-LD4-1HI-30-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1561.8	1561.8	1561.8	1561.8	1561.8
2.5°	1563.7	1559.6	1551.0	1559.3	1561.5
5°	1558.0	1554.8	1560.2	1577.7	1582.2
7.5°	1544.9	1557.0	1571.3	1603.2	1613.3
10°	1525.5	1548.4	1591.4	1618.4	1607.9
12.5°	1502.0	1540.8	1598.4	1545.6	1521.1
15°	1474.6	1531.3	1546.2	1495.0	1495.9
17.5°	1442.5	1523.3	1477.2	1475.9	1466.7
20°	1407.8	1496.6	1435.5	1433.0	1423.1
22.5°	1370.6	1461.3	1398.6	1393.5	1420.2
25°	1330.2	1415.1	1350.6	1391.0	1413.5
27.5°	1279.6	1354.7	1310.5	1367.7	1396.0
30°	1228.4	1292.3	1269.4	1349.3	1399.5
32.5°	1180.3	1227.1	1235.7	1342.3	1350.6
35°	1134.8	1166.3	1183.8	1291.4	1335.3
37.5°	1084.9	1093.5	1139.9	1270.1	1312.4
40°	1034.0	1028.6	1103.0	1235.1	1293.6
42.5°	979.3	977.4	1063.9	1217.6	1246.8
45°	927.4	931.5	1008.2	1167.9	1211.5
47.5°	874.3	879.7	955.4	1113.5	1167.6
50°	812.6	819.6	908.3	1065.2	1134.8
52.5°	745.7	759.1	862.5	1019.4	1089.7
55°	683.1	694.2	804.3	980.2	1058.2
57.5°	625.8	632.5	744.2	930.9	989.8
60°	569.5	571.1	687.5	876.2	932.5
62.5°	504.9	507.8	629.3	811.6	887.0
65°	432.4	446.0	566.6	749.9	818.0
67.5°	364.6	388.5	502.7	693.3	728.9
70°	292.1	332.5	440.0	626.8	651.9
72.5°	225.6	273.0	375.7	552.3	587.6
75°	163.5	216.7	315.9	485.5	516.0
77.5°	110.1	164.2	259.9	411.7	452.1
80°	65.9	119.9	210.0	343.3	388.8
82.5°	33.7	80.5	162.9	287.9	328.7
85°	14.6	50.9	123.1	238.9	274.2
87.5°	4.1	29.0	90.7	193.1	223.0
90°	0.3	15.3	64.6	151.4	178.5
92.5°	0.3	7.3	45.5	114.5	135.2
95°	0.3	3.8	28.3	83.0	101.5
97.5°	0.3	2.2	17.2	58.9	74.4
100°	0.3	1.9	10.2	39.1	53.1
102.5°	0.3	2.2	7.0	24.8	34.7
105°	0.3	2.2	5.7	16.2	22.9
107.5°	0.6	2.2	5.1	12.1	15.9
110°	0.3	1.9	5.4	9.2	12.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.6	1.6	5.1	7.6	9.2
115°	0.3	1.3	4.5	7.3	7.6
117.5°	0.6	1.0	3.5	7.3	7.6
120°	0.6	0.6	2.9	7.0	8.0
122.5°	0.6	0.6	2.2	6.4	7.6
125°	0.3	0.6	1.9	4.8	6.7
127.5°	0.6	0.6	1.6	3.8	5.1
130°	0.6	0.6	1.3	2.9	3.8
132.5°	0.6	0.6	1.0	2.2	2.9
135°	0.6	0.6	0.6	1.6	2.2
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)