

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: P517284

Luminaire Tested: HVL12-1-LD4-3STD-40-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: P517284
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3STD-40-UNV-C-EDD
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2902.0 lumens
Efficiency: N/A
Efficacy: 118.5 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 1' x H: 0.17')
CIE Type: Direct

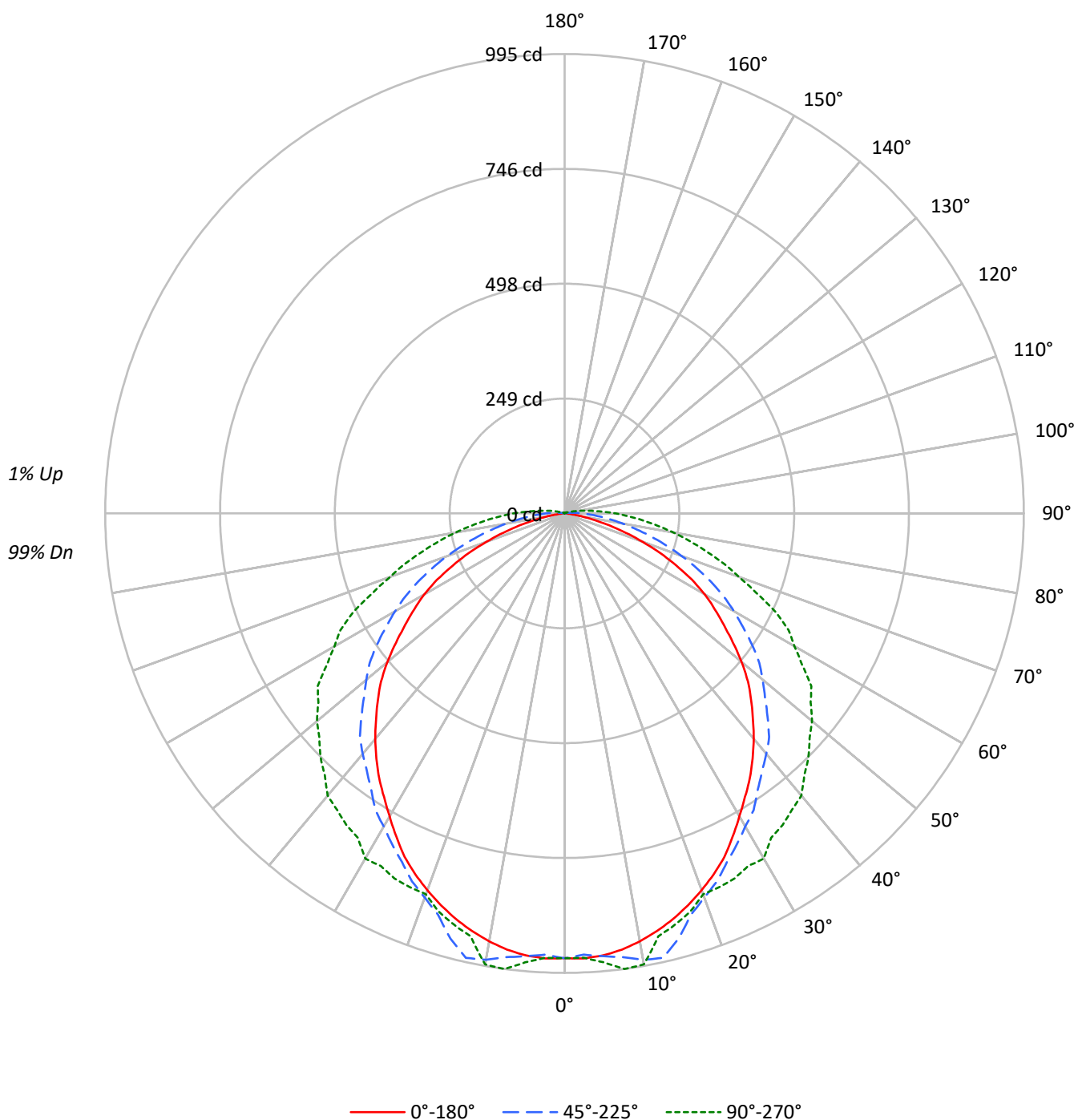
Input Watts (W): 24.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	10369	10369	10369
5°	10234	10188	10393
10°	9990	10301	10531
15°	9702	9996	9843
20°	9377	9341	9479
25°	9041	8913	9608
30°	8591	8566	9787
35°	8237	8236	9691
40°	7862	7980	9836
45°	7463	7661	9750
50°	7002	7323	9779
55°	6386	6965	9893
60°	5868	6483	9609
65°	5004	5912	9466
70°	3888	5184	8679
75°	2587	4312	8161
80°	1294	3435	7641
85°	383	2537	7192

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 9893 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	92.6	3.2
10°-20°	263.7	9.1
20°-30°	392.3	13.5
30°-40°	471.5	16.2
40°-50°	496.3	17.1
50°-60°	460.5	15.9
60°-70°	364.1	12.5
70°-80°	222.4	7.7
80°-90°	96.9	3.3
90°-100°	30.2	1.0
100°-110°	6.8	0.2
110°-120°	2.7	0.1
120°-130°	1.5	0.1
130°-140°	0.4	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°	748.5	25.8
0°-40°	1220.1	42.0
0°-60°	2176.9	75.0
0°-90°	2860.4	98.6
90°-120°	39.7	1.4
90°-150°	41.6	1.4
90°-180°	42.0	1.4
0°-180°	2902.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	963	963	963	963	963	
5°	961	959	962	973	976	91
15°	910	944	954	922	923	256
25°	820	873	833	858	872	377
35°	700	719	730	796	824	437
45°	572	575	622	720	747	441
55°	421	428	496	605	653	379
65°	267	275	350	462	504	264
75°	101	134	195	300	318	110
85°	9	31	76	147	169	14
90°	0	9	40	93	110	0
95°	0	2	18	51	63	0
105°	0	1	4	10	14	0
115°	0	1	3	4	5	0
125°	0	0	1	3	4	0
135°	0	0	0	1	1	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°	963.3	963.3	963.3	963.3	963.3
2.5°	964.5	961.9	956.6	961.7	963.1
5°	961.0	959.0	962.3	973.1	975.9
7.5°	952.9	960.4	969.2	988.8	995.1
10°	940.9	955.1	981.6	998.2	991.8
12.5°	926.4	950.4	985.9	953.3	938.2
15°	909.5	944.5	953.7	922.1	922.7
17.5°	889.7	939.6	911.1	910.3	904.6
20°	868.3	923.1	885.4	883.8	877.7
22.5°	845.4	901.3	862.6	859.5	876.0
25°	820.4	872.8	833.0	857.9	871.9
27.5°	789.2	835.6	808.3	843.6	861.1
30°	757.7	797.1	783.0	832.2	863.2
32.5°	728.0	756.9	762.2	827.9	833.0
35°	700.0	719.4	730.2	796.5	823.6
37.5°	669.2	674.5	703.1	783.4	809.5
40°	637.8	634.4	680.3	761.8	797.9
42.5°	604.0	602.8	656.2	751.0	769.0
45°	572.0	574.6	621.9	720.4	747.3
47.5°	539.2	542.6	589.3	686.8	720.2
50°	501.2	505.5	560.2	657.0	700.0
52.5°	460.0	468.2	532.0	628.7	672.1
55°	421.3	428.2	496.1	604.6	652.7
57.5°	386.0	390.1	459.0	574.2	610.5
60°	351.3	352.2	424.1	540.4	575.2
62.5°	311.4	313.2	388.1	500.6	547.1
65°	266.7	275.1	349.5	462.5	504.5
67.5°	224.9	239.6	310.0	427.6	449.6
70°	180.1	205.1	271.4	386.6	402.1
72.5°	139.1	168.4	231.8	340.7	362.4
75°	100.9	133.6	194.9	299.5	318.3
77.5°	67.9	101.3	160.3	253.9	278.8
80°	40.6	74.0	129.5	211.7	239.8
82.5°	20.8	49.6	100.5	177.6	202.7
85°	9.0	31.4	75.9	147.4	169.2
87.5°	2.6	17.9	55.9	119.1	137.6
90°	0.2	9.4	39.8	93.4	110.1
92.5°	0.2	4.5	28.1	70.6	83.4
95°	0.2	2.4	17.5	51.2	62.6
97.5°	0.2	1.4	10.6	36.3	45.9
100°	0.2	1.2	6.3	24.1	32.8
102.5°	0.2	1.4	4.3	15.3	21.4
105°	0.2	1.4	3.5	10.0	14.1
107.5°	0.4	1.4	3.1	7.5	9.8
110°	0.2	1.2	3.3	5.7	7.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.1	4.7	5.7
115°	0.2	0.8	2.7	4.5	4.7
117.5°	0.4	0.6	2.2	4.5	4.7
120°	0.4	0.4	1.8	4.3	4.9
122.5°	0.4	0.4	1.4	3.9	4.7
125°	0.2	0.4	1.2	2.9	4.1
127.5°	0.4	0.4	1.0	2.4	3.1
130°	0.4	0.4	0.8	1.8	2.4
132.5°	0.4	0.4	0.6	1.4	1.8
135°	0.4	0.4	0.4	1.0	1.4
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)