

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: P517459

Luminaire Tested: HVL12-4-LD4-1LO-40-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: P517459
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1LO-40-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3009.0 lumens
Efficiency: N/A
Efficacy: 127.5 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

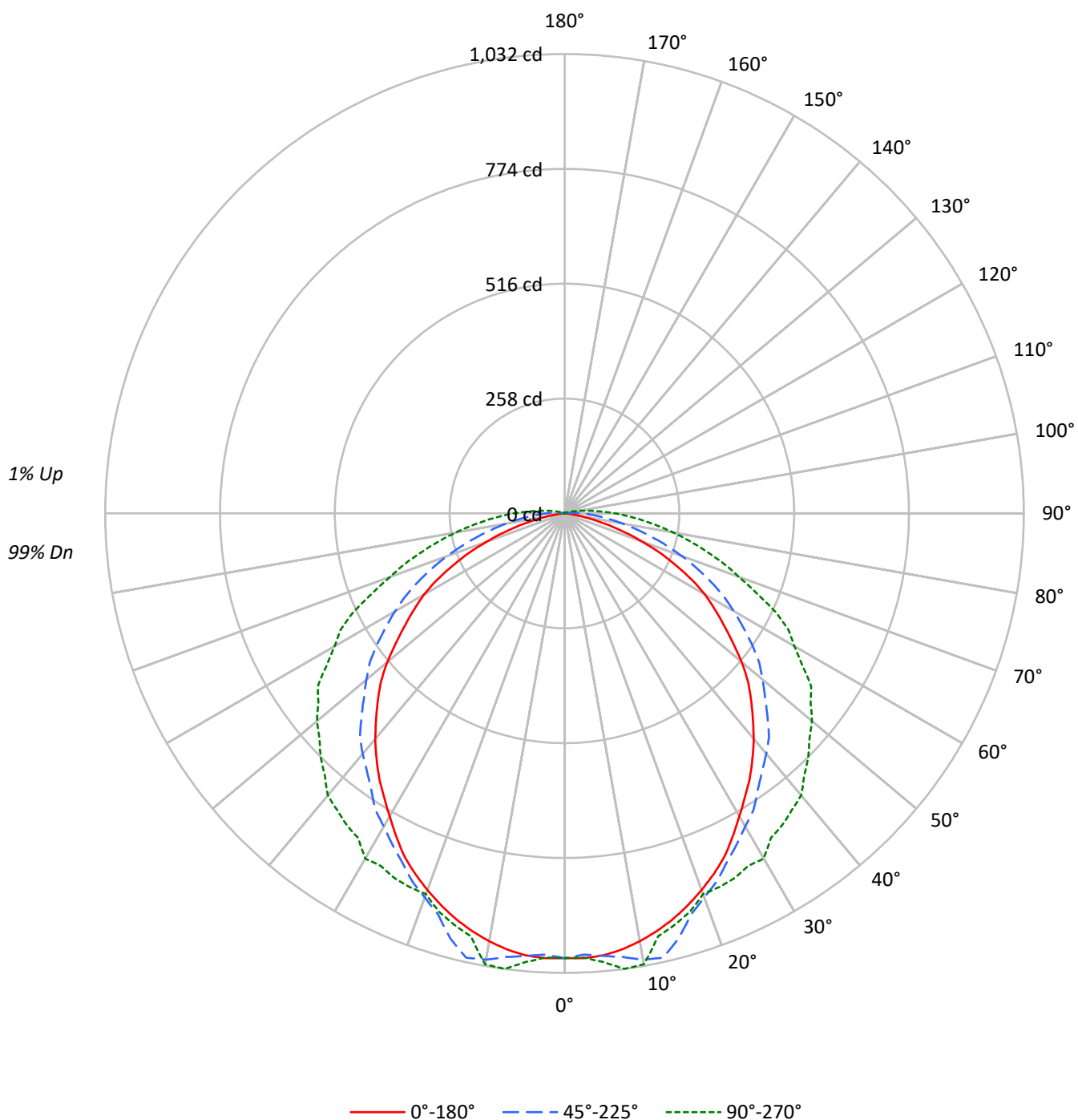
Input Watts (W): 23.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	2688	2688	2688
5°	2682	2661	2694
10°	2646	2710	2730
15°	2598	2650	2551
20°	2540	2495	2457
25°	2478	2400	2491
30°	2384	2325	2537
35°	2317	2255	2512
40°	2245	2205	2550
45°	2167	2139	2527
50°	2073	2069	2535
55°	1934	1994	2564
60°	1828	1885	2491
65°	1616	1753	2454
70°	1319	1576	2250
75°	941	1355	2115
80°	528	1134	1980
85°	197	905	1864

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2564 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	96.0	3.2
10°-20°	273.4	9.1
20°-30°	406.8	13.5
30°-40°	488.9	16.2
40°-50°	514.6	17.1
50°-60°	477.5	15.9
60°-70°	377.6	12.5
70°-80°	230.6	7.7
80°-90°	100.5	3.3
90°-100°	31.3	1.0
100°-110°	7.0	0.2
110°-120°	2.8	0.1
120°-130°	1.6	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°	776.1	25.8
0°-40°	1265.1	42.0
0°-60°	2257.2	75.0
0°-90°	2965.8	98.6
90°-120°	41.1	1.4
90°-150°	43.1	1.4
90°-180°	43.0	1.4
0°-180°	3009.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	999	999	999	999	999	
5°	996	994	998	1009	1012	94
15°	943	979	989	956	957	266
25°	851	905	864	890	904	391
35°	726	746	757	826	854	454
45°	593	596	645	747	775	457
55°	437	444	514	627	677	392
65°	276	285	362	480	523	274
75°	105	139	202	310	330	114
85°	9	33	79	153	175	14
90°	0	10	41	97	114	0
95°	0	2	18	53	65	0
105°	0	1	4	10	15	0
115°	0	1	3	5	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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CATALOG NUMBER: HVL12-4-LD4-1LO-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	998.8	998.8	998.8	998.8	998.8
2.5°	1000.0	997.4	991.9	997.2	998.6
5°	996.4	994.3	997.8	1009.0	1011.8
7.5°	988.0	995.8	1004.9	1025.3	1031.8
10°	975.6	990.3	1017.7	1035.0	1028.3
12.5°	960.6	985.4	1022.2	988.4	972.8
15°	943.1	979.3	988.9	956.1	956.7
17.5°	922.5	974.2	944.7	943.9	938.0
20°	900.3	957.1	918.0	916.4	910.1
22.5°	876.5	934.5	894.4	891.2	908.3
25°	850.7	905.0	863.7	889.6	904.0
27.5°	818.3	866.4	838.1	874.7	892.8
30°	785.6	826.5	811.8	862.9	895.1
32.5°	754.9	784.8	790.3	858.4	863.7
35°	725.8	745.9	757.1	825.9	854.0
37.5°	693.8	699.3	729.0	812.2	839.3
40°	661.3	657.8	705.4	789.9	827.3
42.5°	626.3	625.1	680.4	778.7	797.4
45°	593.1	595.8	644.8	746.9	774.8
47.5°	559.1	562.6	611.0	712.1	746.7
50°	519.7	524.1	580.9	681.2	725.8
52.5°	476.9	485.5	551.6	651.9	696.9
55°	436.8	444.0	514.4	626.9	676.7
57.5°	400.2	404.5	475.9	595.3	633.0
60°	364.2	365.2	439.7	560.4	596.4
62.5°	322.9	324.7	402.5	519.0	567.3
65°	276.5	285.3	362.4	479.6	523.1
67.5°	233.2	248.4	321.5	443.4	466.1
70°	186.8	212.6	281.4	400.8	416.9
72.5°	144.3	174.6	240.3	353.2	375.8
75°	104.6	138.6	202.0	310.5	330.0
77.5°	70.4	105.0	166.2	263.3	289.1
80°	42.1	76.7	134.3	219.5	248.6
82.5°	21.6	51.5	104.2	184.1	210.2
85°	9.4	32.6	78.7	152.8	175.4
87.5°	2.6	18.5	58.0	123.5	142.6
90°	0.2	9.8	41.3	96.9	114.1
92.5°	0.2	4.7	29.1	73.2	86.5
95°	0.2	2.4	18.1	53.1	64.9
97.5°	0.2	1.4	11.0	37.6	47.6
100°	0.2	1.2	6.5	25.0	34.0
102.5°	0.2	1.4	4.5	15.9	22.2
105°	0.2	1.4	3.7	10.4	14.6
107.5°	0.4	1.4	3.3	7.7	10.2
110°	0.2	1.2	3.5	5.9	7.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.3	4.9	5.9
115°	0.2	0.8	2.8	4.7	4.9
117.5°	0.4	0.6	2.2	4.7	4.9
120°	0.4	0.4	1.8	4.5	5.1
122.5°	0.4	0.4	1.4	4.1	4.9
125°	0.2	0.4	1.2	3.1	4.3
127.5°	0.4	0.4	1.0	2.4	3.3
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)