

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: P517463

Luminaire Tested: HVL12-4-LD4-1LO-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: P517463
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1LO-50-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3060.0 lumens
Efficiency: N/A
Efficacy: 129.7 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

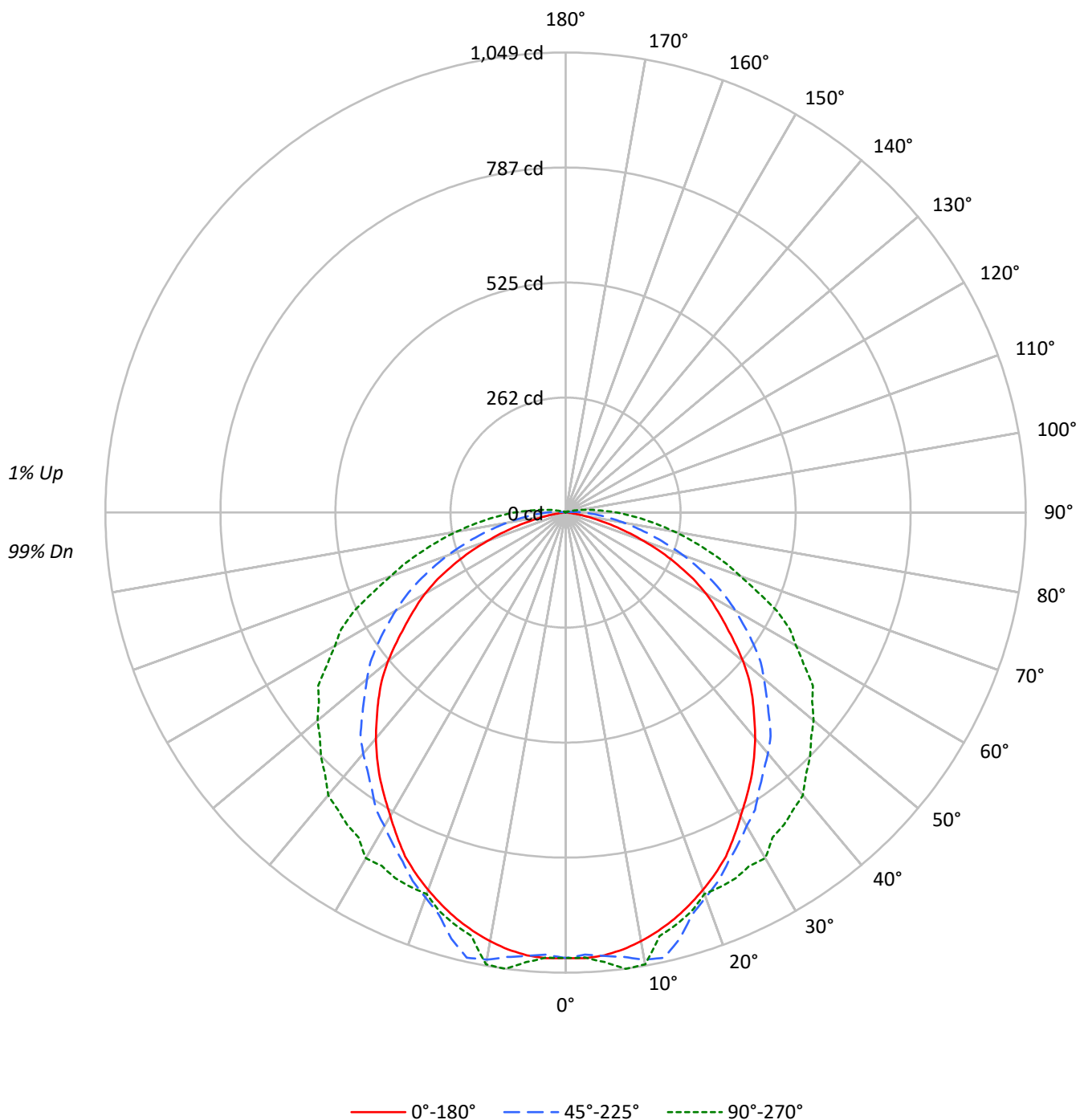
Input Watts (W): 23.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	2733	2733	2733
5°	2727	2706	2740
10°	2691	2757	2776
15°	2642	2695	2595
20°	2583	2537	2499
25°	2520	2440	2533
30°	2424	2364	2580
35°	2356	2293	2555
40°	2283	2243	2593
45°	2204	2175	2570
50°	2108	2104	2578
55°	1967	2028	2608
60°	1859	1917	2533
65°	1644	1783	2495
70°	1341	1603	2288
75°	957	1379	2151
80°	536	1153	2015
85°	199	921	1896

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2608 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	97.6	3.2
10°-20°	278.0	9.1
20°-30°	413.7	13.5
30°-40°	497.2	16.2
40°-50°	523.3	17.1
50°-60°	485.6	15.9
60°-70°	383.9	12.5
70°-80°	234.5	7.7
80°-90°	102.2	3.3
90°-100°	31.8	1.0
100°-110°	7.1	0.2
110°-120°	2.9	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°	789.3	25.8
0°-40°	1286.5	42.0
0°-60°	2295.5	75.0
0°-90°	3016.1	98.6
90°-120°	41.8	1.4
90°-150°	43.9	1.4
90°-180°	44.0	1.4
0°-180°	3060.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1016	1016	1016	1016	1016	
5°	1013	1011	1015	1026	1029	96
15°	959	996	1006	972	973	270
25°	865	920	878	905	919	397
35°	738	759	770	840	868	461
45°	603	606	656	760	788	465
55°	444	452	523	638	688	399
65°	281	290	368	488	532	278
75°	106	141	206	316	336	116
85°	10	33	80	155	178	15
90°	0	10	42	98	116	0
95°	0	2	18	54	66	0
105°	0	1	4	11	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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1015.8	1015.8	1015.8	1015.8	1015.8
2.5°	1017.0	1014.3	1008.7	1014.1	1015.5
5°	1013.3	1011.2	1014.7	1026.1	1029.0
7.5°	1004.8	1012.6	1022.0	1042.7	1049.3
10°	992.2	1007.1	1035.0	1052.6	1045.8
12.5°	976.9	1002.1	1039.5	1005.2	989.3
15°	959.1	995.9	1005.6	972.3	972.9
17.5°	938.2	990.7	960.7	959.9	953.9
20°	915.6	973.3	933.6	932.0	925.5
22.5°	891.4	950.4	909.6	906.3	923.7
25°	865.1	920.4	878.4	904.6	919.3
27.5°	832.2	881.1	852.3	889.5	908.0
30°	798.9	840.5	825.6	877.5	910.2
32.5°	767.7	798.1	803.7	873.0	878.4
35°	738.1	758.6	769.9	839.9	868.4
37.5°	705.6	711.2	741.4	826.0	853.5
40°	672.5	669.0	717.4	803.3	841.3
42.5°	636.9	635.6	691.9	791.9	810.9
45°	603.2	605.9	655.7	759.6	787.9
47.5°	568.6	572.1	621.4	724.2	759.4
50°	528.5	533.0	590.7	692.8	738.1
52.5°	485.0	493.7	561.0	663.0	708.7
55°	444.2	451.5	523.1	637.5	688.2
57.5°	407.0	411.4	484.0	605.4	643.7
60°	370.4	371.4	447.1	569.8	606.5
62.5°	328.4	330.2	409.3	527.8	576.9
65°	281.2	290.1	368.5	487.7	532.0
67.5°	237.1	252.6	326.9	450.9	474.0
70°	189.9	216.2	286.2	407.6	424.0
72.5°	146.7	177.5	244.4	359.2	382.2
75°	106.4	140.9	205.5	315.8	335.6
77.5°	71.6	106.8	169.1	267.8	294.0
80°	42.8	78.0	136.6	223.3	252.9
82.5°	21.9	52.3	105.9	187.3	213.7
85°	9.5	33.1	80.1	155.4	178.4
87.5°	2.7	18.8	59.0	125.6	145.0
90°	0.2	9.9	42.0	98.5	116.1
92.5°	0.2	4.8	29.6	74.5	87.9
95°	0.2	2.5	18.4	54.0	66.0
97.5°	0.2	1.4	11.2	38.3	48.4
100°	0.2	1.2	6.6	25.5	34.6
102.5°	0.2	1.4	4.6	16.1	22.6
105°	0.2	1.4	3.7	10.6	14.9
107.5°	0.4	1.4	3.3	7.9	10.3
110°	0.2	1.2	3.5	6.0	8.1

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CATALOG NUMBER: HVL12-4-LD4-1LO-50-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.3	5.0	6.0
115°	0.2	0.8	2.9	4.8	5.0
117.5°	0.4	0.6	2.3	4.8	5.0
120°	0.4	0.4	1.9	4.6	5.2
122.5°	0.4	0.4	1.4	4.1	5.0
125°	0.2	0.4	1.2	3.1	4.3
127.5°	0.4	0.4	1.0	2.5	3.3
130°	0.4	0.4	0.8	1.9	2.5
132.5°	0.4	0.4	0.6	1.4	1.9
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)