

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: P517575

Luminaire Tested: HVL12-4-LD4-3STD-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: P517575
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3STD-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: 11804.0 lumens
Efficiency: N/A
Efficacy: 120.3 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

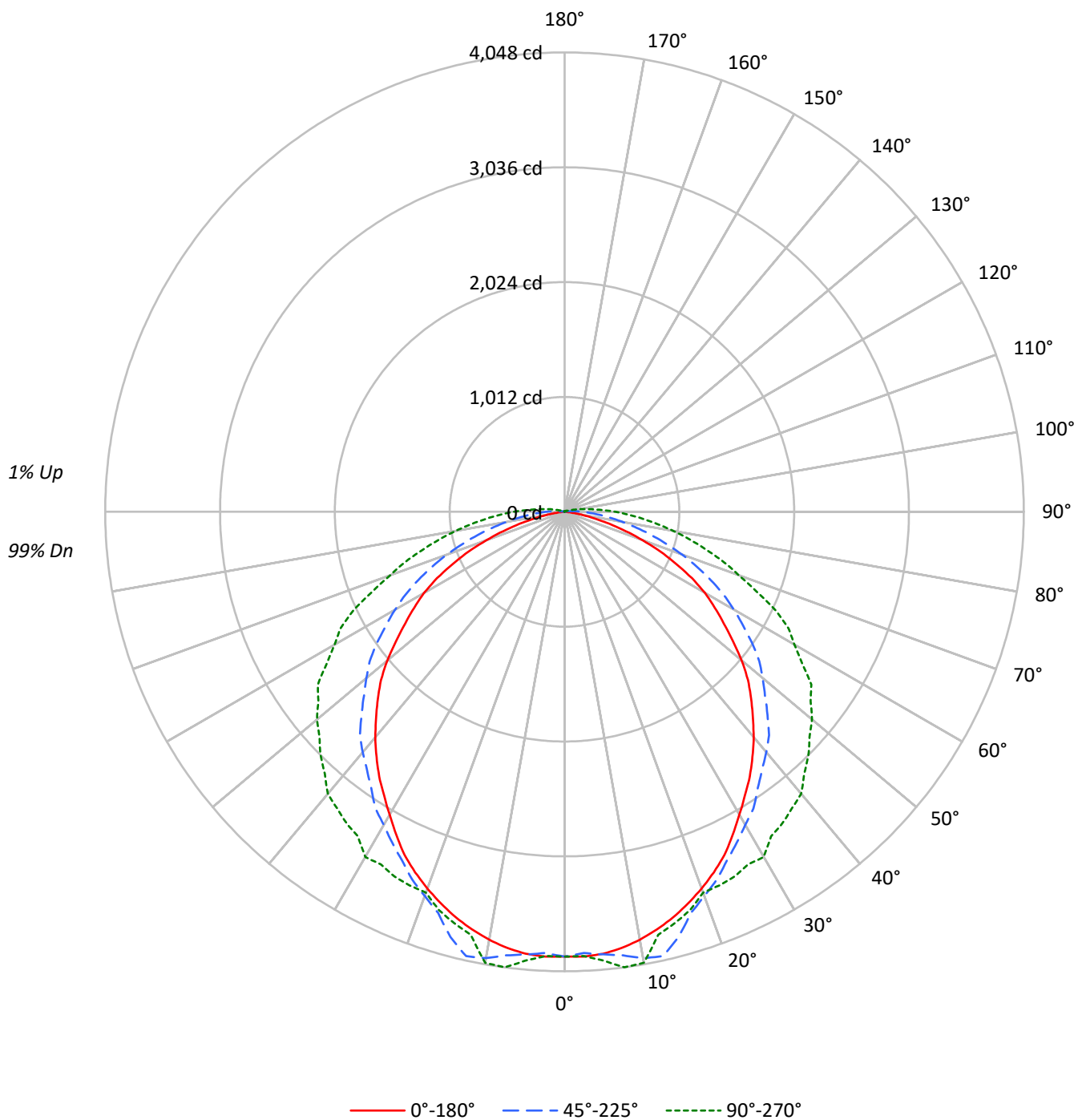
Input Watts (W): 98.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	10544	10544	10544
5°	10520	10439	10568
10°	10382	10633	10708
15°	10193	10397	10009
20°	9963	9788	9639
25°	9720	9414	9770
30°	9351	9120	9952
35°	9088	8844	9855
40°	8805	8651	10002
45°	8500	8390	9914
50°	8131	8115	9944
55°	7588	7821	10060
60°	7172	7396	9770
65°	6340	6878	9626
70°	5173	6183	8826
75°	3692	5317	8298
80°	2071	4447	7770
85°	768	3553	7311

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 10060 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	376.6	3.2
10°-20°	1072.4	9.1
20°-30°	1595.7	13.5
30°-40°	1918.0	16.2
40°-50°	2018.8	17.1
50°-60°	1873.2	15.9
60°-70°	1481.1	12.5
70°-80°	904.7	7.7
80°-90°	394.2	3.3
90°-100°	122.7	1.0
100°-110°	27.6	0.2
110°-120°	11.1	0.1
120°-130°	6.2	0.1
130°-140°	1.7	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°	3044.7	25.8
0°-40°	4962.7	42.0
0°-60°	8854.7	75.0
0°-90°	11634.7	98.6
90°-120°	161.4	1.4
90°-150°	169.3	1.4
90°-180°	169.0	1.4
0°-180°	11804.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3918	3918	3918	3918	3918	
5°	3909	3901	3914	3958	3969	370
15°	3700	3842	3879	3751	3753	1042
25°	3337	3550	3388	3490	3546	1532
35°	2847	2926	2970	3240	3350	1779
45°	2327	2337	2529	2930	3040	1794
55°	1714	1742	2018	2459	2655	1540
65°	1085	1119	1422	1881	2052	1074
75°	410	544	793	1218	1295	448
85°	37	128	309	599	688	57
90°	1	38	162	380	448	2
95°	1	10	71	208	255	1
105°	1	6	14	41	58	1
115°	1	3	11	18	19	1
125°	1	2	5	12	17	1
135°	2	2	2	4	6	1
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°	3918.3	3918.3	3918.3	3918.3	3918.3
2.5°	3923.1	3912.7	3891.1	3911.9	3917.5
5°	3908.7	3900.7	3914.3	3958.2	3969.4
7.5°	3876.0	3906.3	3942.2	4022.0	4047.6
10°	3827.3	3884.8	3992.5	4060.4	4034.0
12.5°	3768.2	3865.6	4010.1	3877.6	3816.1
15°	3699.6	3841.7	3879.2	3750.7	3753.1
17.5°	3619.0	3821.7	3706.0	3702.8	3679.6
20°	3532.0	3754.7	3601.4	3595.0	3570.3
22.5°	3438.6	3666.1	3508.8	3496.0	3563.1
25°	3337.2	3550.3	3388.3	3489.7	3546.3
27.5°	3210.3	3398.7	3287.7	3431.4	3502.4
30°	3081.8	3242.2	3184.8	3385.1	3511.2
32.5°	2961.3	3078.6	3100.1	3367.5	3388.3
35°	2847.1	2926.1	2970.0	3239.8	3350.0
37.5°	2721.8	2743.4	2859.9	3186.4	3292.5
40°	2594.1	2580.5	2767.3	3098.6	3245.4
42.5°	2456.8	2452.0	2669.1	3054.7	3128.1
45°	2326.7	2337.1	2529.4	2930.1	3039.5
47.5°	2193.4	2207.0	2396.9	2793.6	2929.3
50°	2038.6	2056.1	2278.8	2672.3	2847.1
52.5°	1870.9	1904.5	2163.9	2557.4	2733.8
55°	1713.7	1741.6	2017.8	2459.2	2654.8
57.5°	1570.0	1586.8	1867.0	2335.5	2483.2
60°	1428.7	1432.7	1724.9	2198.2	2339.5
62.5°	1266.7	1273.9	1578.8	2036.2	2225.3
65°	1084.7	1119.1	1421.6	1881.3	2052.1
67.5°	914.7	974.6	1261.1	1739.2	1828.6
70°	732.7	834.1	1103.9	1572.4	1635.5
72.5°	565.9	684.8	942.7	1385.6	1474.2
75°	410.3	543.6	792.6	1218.0	1294.7
77.5°	276.2	411.9	652.1	1032.9	1134.2
80°	165.2	300.9	526.8	861.2	975.4
82.5°	84.6	201.9	408.7	722.4	824.5
85°	36.7	127.7	308.9	599.4	688.0
87.5°	10.4	72.6	227.5	484.5	559.5
90°	0.8	38.3	162.0	379.9	447.8
92.5°	0.8	18.4	114.1	287.3	339.2
95°	0.8	9.6	71.0	208.3	254.6
97.5°	0.8	5.6	43.1	147.7	186.8
100°	0.8	4.8	25.5	98.2	133.3
102.5°	0.8	5.6	17.6	62.3	87.0
105°	0.8	5.6	14.4	40.7	57.5
107.5°	1.6	5.6	12.8	30.3	39.9
110°	0.8	4.8	13.6	23.1	31.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.6	4.0	12.8	19.2	23.1
115°	0.8	3.2	11.2	18.4	19.2
117.5°	1.6	2.4	8.8	18.4	19.2
120°	1.6	1.6	7.2	17.6	20.0
122.5°	1.6	1.6	5.6	16.0	19.2
125°	0.8	1.6	4.8	12.0	16.8
127.5°	1.6	1.6	4.0	9.6	12.8
130°	1.6	1.6	3.2	7.2	9.6
132.5°	1.6	1.6	2.4	5.6	7.2
135°	1.6	1.6	1.6	4.0	5.6
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)