

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: P517555

Luminaire Tested: HVL12-4-LD4-3LO-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: P517555
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3LO-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: 9011.0 lumens
Efficiency: N/A
Efficacy: 130.2 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

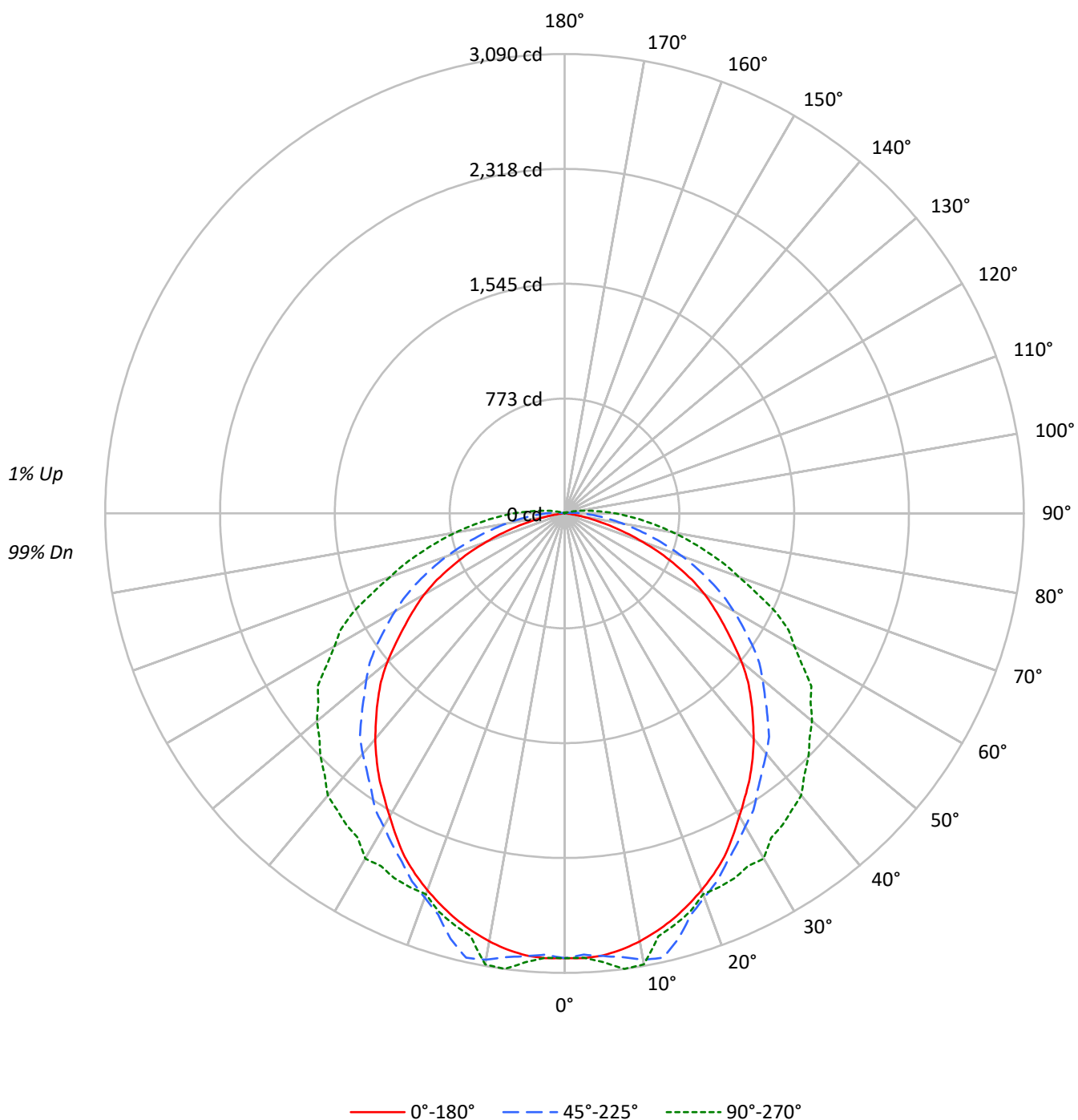
Input Watts (W): 69.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	8049	8049	8049
5°	8031	7969	8068
10°	7925	8117	8174
15°	7781	7937	7640
20°	7606	7472	7358
25°	7420	7186	7458
30°	7138	6962	7598
35°	6938	6752	7523
40°	6721	6604	7635
45°	6489	6405	7569
50°	6207	6195	7591
55°	5793	5971	7680
60°	5475	5646	7458
65°	4840	5251	7348
70°	3949	4720	6737
75°	2818	4059	6335
80°	1581	3395	5931
85°	586	2712	5581

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 7680 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	287.5	3.2
10°-20°	818.7	9.1
20°-30°	1218.1	13.5
30°-40°	1464.2	16.2
40°-50°	1541.1	17.1
50°-60°	1430.0	15.9
60°-70°	1130.7	12.5
70°-80°	690.6	7.7
80°-90°	300.9	3.3
90°-100°	93.7	1.0
100°-110°	21.1	0.2
110°-120°	8.4	0.1
120°-130°	4.7	0.1
130°-140°	1.3	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°	2324.3	25.8
0°-40°	3788.5	42.0
0°-60°	6759.6	75.0
0°-90°	8881.8	98.6
90°-120°	123.2	1.4
90°-150°	129.2	1.4
90°-180°	129.0	1.4
0°-180°	9011.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2991	2991	2991	2991	2991	
5°	2984	2978	2988	3022	3030	283
15°	2824	2933	2961	2863	2865	796
25°	2548	2710	2587	2664	2707	1170
35°	2174	2234	2267	2473	2557	1358
45°	1776	1784	1931	2237	2320	1369
55°	1308	1330	1540	1877	2027	1175
65°	828	854	1085	1436	1567	820
75°	313	415	605	930	988	342
85°	28	98	236	458	525	43
90°	1	29	124	290	342	1
95°	1	7	54	159	194	0
105°	1	4	11	31	44	1
115°	1	2	8	14	15	1
125°	1	1	4	9	13	1
135°	1	1	1	3	4	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°	2991.2	2991.2	2991.2	2991.2	2991.2
2.5°	2994.8	2986.9	2970.4	2986.3	2990.6
5°	2983.9	2977.8	2988.1	3021.6	3030.2
7.5°	2958.9	2982.0	3009.4	3070.4	3089.9
10°	2921.7	2965.6	3047.8	3099.6	3079.5
12.5°	2876.6	2950.9	3061.2	2960.1	2913.2
15°	2824.2	2932.7	2961.3	2863.2	2865.0
17.5°	2762.7	2917.4	2829.1	2826.6	2809.0
20°	2696.3	2866.3	2749.3	2744.4	2725.5
22.5°	2625.0	2798.6	2678.6	2668.8	2720.0
25°	2547.6	2710.3	2586.6	2664.0	2707.2
27.5°	2450.7	2594.5	2509.8	2619.5	2673.7
30°	2352.6	2475.1	2431.2	2584.1	2680.4
32.5°	2260.6	2350.2	2366.6	2570.7	2586.6
35°	2173.5	2233.8	2267.3	2473.2	2557.3
37.5°	2077.8	2094.2	2183.2	2432.4	2513.5
40°	1980.3	1969.9	2112.5	2365.4	2477.5
42.5°	1875.5	1871.8	2037.6	2331.9	2387.9
45°	1776.2	1784.1	1930.9	2236.8	2320.3
47.5°	1674.4	1684.8	1829.8	2132.6	2236.2
50°	1556.2	1569.6	1739.6	2040.0	2173.5
52.5°	1428.3	1453.8	1651.9	1952.3	2086.9
55°	1308.2	1329.5	1540.4	1877.3	2026.6
57.5°	1198.5	1211.3	1425.2	1782.9	1895.6
60°	1090.7	1093.7	1316.7	1678.1	1785.9
62.5°	967.0	972.5	1205.2	1554.4	1698.8
65°	828.1	854.3	1085.2	1436.2	1566.6
67.5°	698.3	744.0	962.7	1327.7	1396.0
70°	559.4	636.7	842.7	1200.4	1248.5
72.5°	432.0	522.8	719.6	1057.8	1125.4
75°	313.2	414.9	605.1	929.8	988.3
77.5°	210.8	314.4	497.8	788.5	865.8
80°	126.1	229.7	402.2	657.5	744.6
82.5°	64.6	154.2	312.0	551.4	629.4
85°	28.0	97.5	235.8	457.6	525.2
87.5°	7.9	55.4	173.7	369.9	427.1
90°	0.6	29.2	123.7	290.0	341.8
92.5°	0.6	14.0	87.1	219.4	259.0
95°	0.6	7.3	54.2	159.0	194.4
97.5°	0.6	4.3	32.9	112.7	142.6
100°	0.6	3.7	19.5	74.9	101.8
102.5°	0.6	4.3	13.4	47.5	66.4
105°	0.6	4.3	11.0	31.1	43.9
107.5°	1.2	4.3	9.7	23.2	30.5
110°	0.6	3.7	10.4	17.7	23.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	3.0	9.7	14.6	17.7
115°	0.6	2.4	8.5	14.0	14.6
117.5°	1.2	1.8	6.7	14.0	14.6
120°	1.2	1.2	5.5	13.4	15.2
122.5°	1.2	1.2	4.3	12.2	14.6
125°	0.6	1.2	3.7	9.1	12.8
127.5°	1.2	1.2	3.0	7.3	9.7
130°	1.2	1.2	2.4	5.5	7.3
132.5°	1.2	1.2	1.8	4.3	5.5
135°	1.2	1.2	1.2	3.0	4.3
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)