

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: P517552

Luminaire Tested: HVL12-4-LD4-3LO-35-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: P517552
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3LO-35-UNV-C-EDD
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8921.0 lumens
Efficiency: N/A
Efficacy: 128.9 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

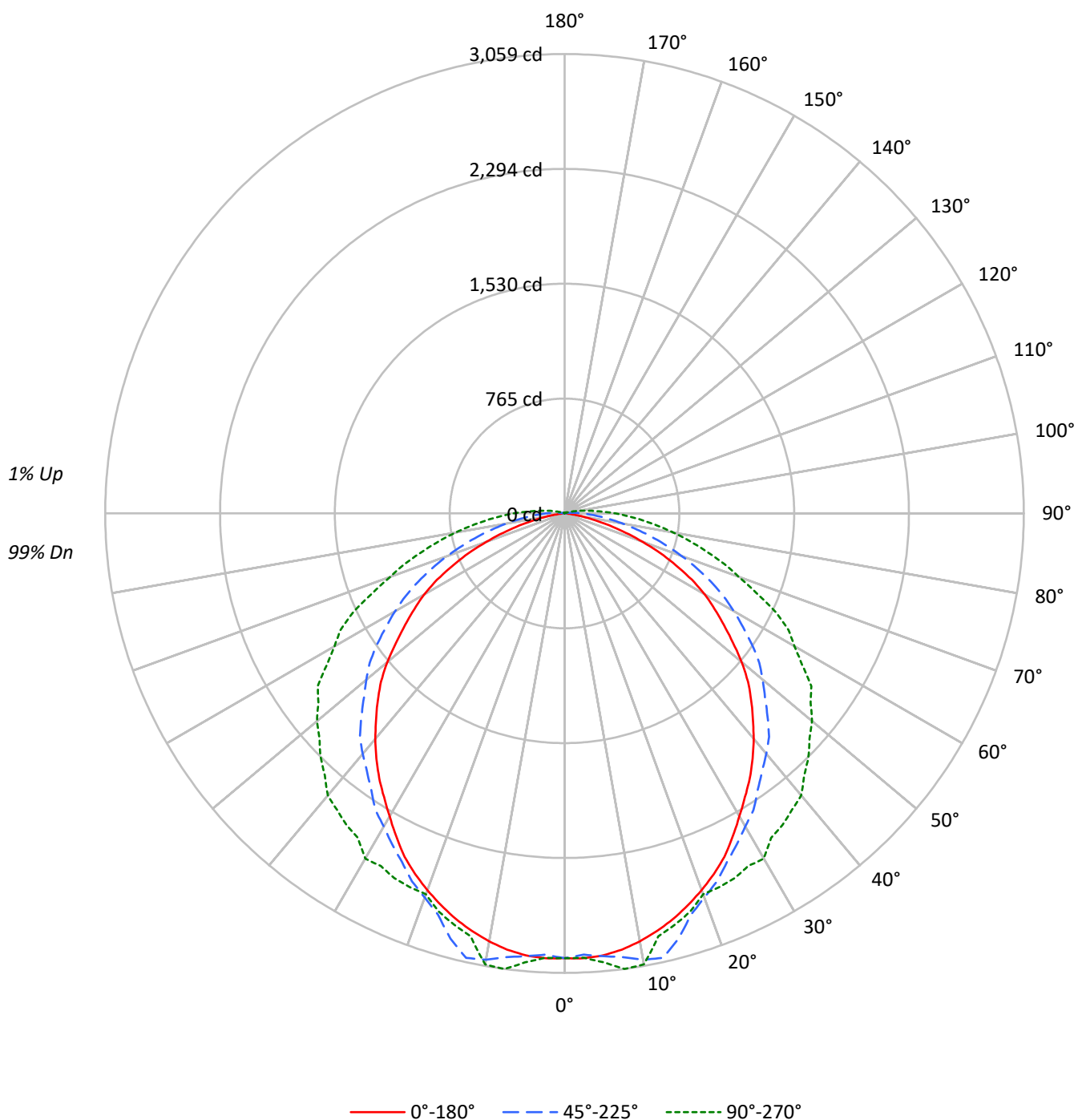
Input Watts (W): 69.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	7969	7969	7969
5°	7951	7889	7987
10°	7846	8036	8093
15°	7703	7857	7564
20°	7530	7398	7285
25°	7346	7114	7384
30°	7067	6893	7522
35°	6868	6684	7448
40°	6654	6538	7559
45°	6424	6341	7493
50°	6145	6133	7515
55°	5735	5911	7603
60°	5420	5589	7384
65°	4792	5199	7275
70°	3910	4673	6670
75°	2790	4018	6271
80°	1566	3361	5872
85°	579	2686	5526

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 7603 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.6	3.2
10°-20°	810.5	9.1
20°-30°	1205.9	13.5
30°-40°	1449.5	16.2
40°-50°	1525.7	17.1
50°-60°	1415.7	15.9
60°-70°	1119.4	12.5
70°-80°	683.7	7.7
80°-90°	297.9	3.3
90°-100°	92.7	1.0
100°-110°	20.8	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°	2301.1	25.8
0°-40°	3750.6	42.0
0°-60°	6692.1	75.0
0°-90°	8793.1	98.6
90°-120°	122.0	1.4
90°-150°	127.9	1.4
90°-180°	128.0	1.4
0°-180°	8921.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2961	2961	2961	2961	2961	
5°	2954	2948	2958	2991	3000	280
15°	2796	2903	2932	2835	2836	788
25°	2522	2683	2561	2637	2680	1158
35°	2152	2212	2245	2448	2532	1345
45°	1758	1766	1912	2214	2297	1355
55°	1295	1316	1525	1859	2006	1164
65°	820	846	1074	1422	1551	812
75°	310	411	599	920	978	338
85°	28	96	234	453	520	43
90°	1	29	122	287	338	1
95°	1	7	54	157	192	0
105°	1	4	11	31	43	1
115°	1	2	8	14	14	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

TEST NUMBER: P517552

CATALOG NUMBER: HVL12-4-LD4-3LO-35-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2961.3	2961.3	2961.3	2961.3	2961.3
2.5°	2964.9	2957.1	2940.8	2956.5	2960.7
5°	2954.0	2948.0	2958.3	2991.4	2999.9
7.5°	2929.3	2952.2	2979.4	3039.7	3059.0
10°	2892.5	2936.0	3017.4	3068.7	3048.8
12.5°	2847.9	2921.5	3030.7	2930.5	2884.1
15°	2796.0	2903.4	2931.7	2834.6	2836.4
17.5°	2735.1	2888.3	2800.8	2798.4	2780.9
20°	2669.3	2837.6	2721.8	2717.0	2698.3
22.5°	2598.7	2770.7	2651.8	2642.2	2692.8
25°	2522.1	2683.2	2560.7	2637.3	2680.2
27.5°	2426.2	2568.6	2484.7	2593.3	2647.0
30°	2329.1	2450.3	2406.9	2558.3	2653.6
32.5°	2238.0	2326.7	2343.0	2545.1	2560.7
35°	2151.7	2211.5	2244.6	2448.5	2531.8
37.5°	2057.0	2073.3	2161.4	2408.1	2488.3
40°	1960.5	1950.3	2091.4	2341.8	2452.8
42.5°	1856.8	1853.1	2017.2	2308.6	2364.1
45°	1758.4	1766.3	1911.7	2214.5	2297.1
47.5°	1657.7	1667.9	1811.5	2111.3	2213.9
50°	1540.7	1553.9	1722.2	2019.6	2151.7
52.5°	1414.0	1439.3	1635.4	1932.8	2066.1
55°	1295.1	1316.3	1525.0	1858.6	2006.4
57.5°	1186.6	1199.2	1411.0	1765.1	1876.7
60°	1079.8	1082.8	1303.6	1661.3	1768.1
62.5°	957.3	962.8	1193.2	1538.9	1681.8
65°	819.8	845.7	1074.4	1421.8	1550.9
67.5°	691.3	736.6	953.1	1314.5	1382.0
70°	553.8	630.4	834.3	1188.4	1236.0
72.5°	427.7	517.6	712.4	1047.2	1114.2
75°	310.1	410.8	599.0	920.5	978.4
77.5°	208.7	311.3	492.8	780.6	857.2
80°	124.9	227.4	398.1	650.9	737.2
82.5°	63.9	152.6	308.9	545.9	623.1
85°	27.7	96.5	233.5	453.0	520.0
87.5°	7.8	54.9	171.9	366.2	422.9
90°	0.6	29.0	122.5	287.1	338.4
92.5°	0.6	13.9	86.3	217.2	256.4
95°	0.6	7.2	53.7	157.4	192.4
97.5°	0.6	4.2	32.6	111.6	141.2
100°	0.6	3.6	19.3	74.2	100.7
102.5°	0.6	4.2	13.3	47.1	65.8
105°	0.6	4.2	10.9	30.8	43.4
107.5°	1.2	4.2	9.7	22.9	30.2
110°	0.6	3.6	10.3	17.5	23.5

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CATALOG NUMBER: HVL12-4-LD4-3LO-35-UNV-C-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	3.0	9.7	14.5	17.5
115°	0.6	2.4	8.4	13.9	14.5
117.5°	1.2	1.8	6.6	13.9	14.5
120°	1.2	1.2	5.4	13.3	15.1
122.5°	1.2	1.2	4.2	12.1	14.5
125°	0.6	1.2	3.6	9.0	12.7
127.5°	1.2	1.2	3.0	7.2	9.7
130°	1.2	1.2	2.4	5.4	7.2
132.5°	1.2	1.2	1.8	4.2	5.4
135°	1.2	1.2	1.2	3.0	4.2
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)