

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: P517323

Luminaire Tested: HVL12-2-LD4-1STD-30-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: P517323
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-1STD-30-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1584.0 lumens
Efficiency: N/A
Efficacy: 94.8 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 2' x H: 0.17')
CIE Type: Direct

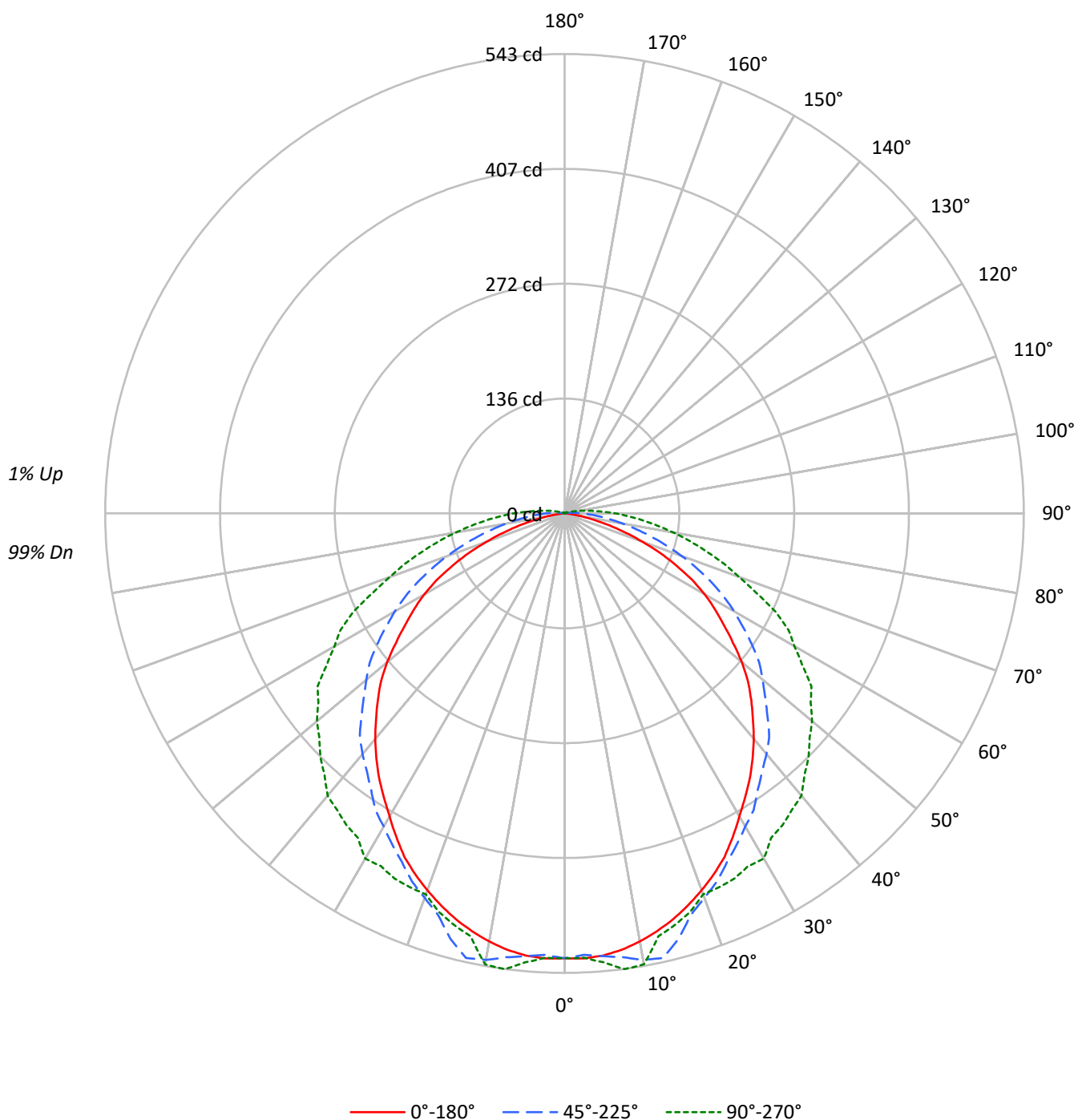
Input Watts (W): 16.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	40	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°	2830	2830	2830
5°	2813	2795	2837
10°	2766	2840	2874
15°	2706	2769	2686
20°	2635	2601	2587
25°	2560	2494	2622
30°	2452	2410	2671
35°	2372	2330	2645
40°	2286	2272	2684
45°	2193	2195	2661
50°	2084	2115	2669
55°	1929	2029	2700
60°	1803	1908	2622
65°	1573	1762	2584
70°	1259	1569	2369
75°	874	1333	2227
80°	467	1094	2085
85°	155	848	1962

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2700 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.5	3.2
10°-20°	143.9	9.1
20°-30°	214.1	13.5
30°-40°	257.4	16.2
40°-50°	270.9	17.1
50°-60°	251.4	15.9
60°-70°	198.8	12.5
70°-80°	121.4	7.7
80°-90°	52.9	3.3
90°-100°	16.5	1.0
100°-110°	3.7	0.2
110°-120°	1.5	0.1
120°-130°	0.8	0.1
130°-140°	0.2	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°	408.6	25.8
0°-40°	666.0	42.0
0°-60°	1188.2	75.0
0°-90°	1561.3	98.6
90°-120°	21.7	1.4
90°-150°	22.7	1.4
90°-180°	23.0	1.5
0°-180°	1584.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	526	526	526	526	526	
5°	524	523	525	531	533	50
15°	496	516	521	503	504	140
25°	448	476	455	468	476	206
35°	382	393	399	435	450	239
45°	312	314	339	393	408	241
55°	230	234	271	330	356	207
65°	146	150	191	252	275	144
75°	55	73	106	163	174	60
85°	5	17	42	80	92	8
90°	0	5	22	51	60	0
95°	0	1	10	28	34	0
105°	0	1	2	6	8	0
115°	0	0	2	2	3	0
125°	0	0	1	2	2	0
135°	0	0	0	0	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°	525.8	525.8	525.8	525.8	525.8
2.5°	526.4	525.1	522.2	524.9	525.7
5°	524.5	523.4	525.3	531.2	532.7
7.5°	520.1	524.2	529.0	539.7	543.2
10°	513.6	521.3	535.8	544.9	541.3
12.5°	505.7	518.7	538.1	520.3	512.1
15°	496.5	515.5	520.6	503.3	503.6
17.5°	485.6	512.8	497.3	496.9	493.8
20°	474.0	503.8	483.3	482.4	479.1
22.5°	461.4	492.0	470.9	469.1	478.1
25°	447.8	476.4	454.7	468.3	475.9
27.5°	430.8	456.1	441.2	460.5	470.0
30°	413.6	435.1	427.4	454.3	471.2
32.5°	397.4	413.1	416.0	451.9	454.7
35°	382.1	392.7	398.6	434.8	449.5
37.5°	365.2	368.1	383.8	427.6	441.8
40°	348.1	346.3	371.3	415.8	435.5
42.5°	329.7	329.0	358.2	409.9	419.8
45°	312.2	313.6	339.4	393.2	407.9
47.5°	294.3	296.2	321.7	374.9	393.1
50°	273.6	275.9	305.8	358.6	382.1
52.5°	251.1	255.6	290.4	343.2	366.9
55°	230.0	233.7	270.8	330.0	356.2
57.5°	210.7	212.9	250.5	313.4	333.2
60°	191.7	192.3	231.5	295.0	313.9
62.5°	170.0	170.9	211.9	273.2	298.6
65°	145.6	150.2	190.8	252.5	275.4
67.5°	122.7	130.8	169.2	233.4	245.4
70°	98.3	111.9	148.1	211.0	219.5
72.5°	75.9	91.9	126.5	185.9	197.8
75°	55.1	72.9	106.4	163.4	173.7
77.5°	37.1	55.3	87.5	138.6	152.2
80°	22.2	40.4	70.7	115.6	130.9
82.5°	11.4	27.1	54.8	96.9	110.6
85°	4.9	17.1	41.5	80.4	92.3
87.5°	1.4	9.7	30.5	65.0	75.1
90°	0.1	5.1	21.7	51.0	60.1
92.5°	0.1	2.5	15.3	38.6	45.5
95°	0.1	1.3	9.5	28.0	34.2
97.5°	0.1	0.7	5.8	19.8	25.1
100°	0.1	0.6	3.4	13.2	17.9
102.5°	0.1	0.7	2.4	8.4	11.7
105°	0.1	0.7	1.9	5.5	7.7
107.5°	0.2	0.7	1.7	4.1	5.4
110°	0.1	0.6	1.8	3.1	4.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.5	1.7	2.6	3.1
115°	0.1	0.4	1.5	2.5	2.6
117.5°	0.2	0.3	1.2	2.5	2.6
120°	0.2	0.2	1.0	2.4	2.7
122.5°	0.2	0.2	0.7	2.1	2.6
125°	0.1	0.2	0.6	1.6	2.2
127.5°	0.2	0.2	0.5	1.3	1.7
130°	0.2	0.2	0.4	1.0	1.3
132.5°	0.2	0.2	0.3	0.7	1.0
135°	0.2	0.2	0.2	0.5	0.7
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)