

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: P517327

Luminaire Tested: HVL12-2-LD4-1STD-35-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: P517327
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-1STD-35-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1605.0 lumens
Efficiency: N/A
Efficacy: 96.1 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.36
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 2' x H: 0.17')
CIE Type: Direct

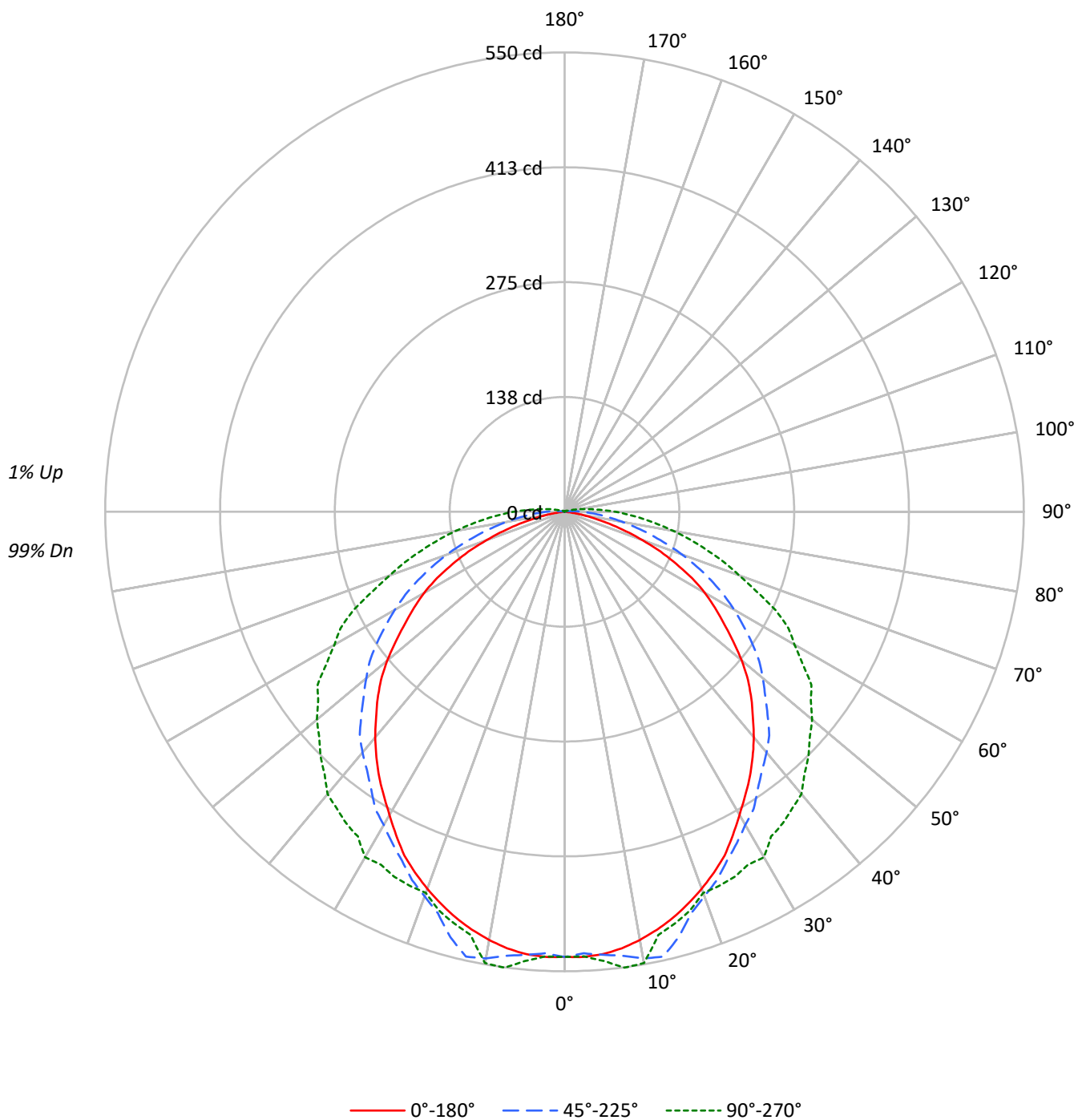
Input Watts (W): 16.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		99
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		81
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		47
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		41
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2868	2868	2868
5°	2851	2831	2874
10°	2803	2877	2912
15°	2741	2806	2722
20°	2669	2635	2622
25°	2594	2527	2657
30°	2484	2442	2706
35°	2403	2361	2680
40°	2316	2302	2720
45°	2223	2224	2696
50°	2111	2143	2704
55°	1954	2056	2736
60°	1828	1932	2657
65°	1594	1785	2617
70°	1275	1590	2400
75°	885	1350	2256
80°	474	1108	2113
85°	158	859	1989

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2736 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.2	3.2
10°-20°	145.8	9.1
20°-30°	217.0	13.5
30°-40°	260.8	16.2
40°-50°	274.5	17.1
50°-60°	254.7	15.9
60°-70°	201.4	12.5
70°-80°	123.0	7.7
80°-90°	53.6	3.3
90°-100°	16.7	1.0
100°-110°	3.8	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°	414.0	25.8
0°-40°	674.8	42.0
0°-60°	1204.0	75.0
0°-90°	1582.0	98.6
90°-120°	21.9	1.4
90°-150°	23.0	1.4
90°-180°	23.0	1.4
0°-180°	1605.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	533	533	533	533	533	
5°	532	530	532	538	540	50
15°	503	522	528	510	510	142
25°	454	483	461	474	482	208
35°	387	398	404	440	456	242
45°	316	318	344	398	413	244
55°	233	237	274	334	361	209
65°	148	152	193	256	279	146
75°	56	74	108	166	176	61
85°	5	17	42	82	94	8
90°	0	5	22	52	61	0
95°	0	1	10	28	35	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°	532.8	532.8	532.8	532.8	532.8
2.5°	533.4	532.0	529.1	531.9	532.7
5°	531.5	530.4	532.2	538.2	539.7
7.5°	527.0	531.1	536.0	546.9	550.4
10°	520.4	528.2	542.9	552.1	548.5
12.5°	512.4	525.6	545.3	527.2	518.9
15°	503.0	522.4	527.5	510.0	510.3
17.5°	492.1	519.6	503.9	503.5	500.3
20°	480.2	510.5	489.7	488.8	485.5
22.5°	467.5	498.5	477.1	475.4	484.5
25°	453.8	482.7	460.7	474.5	482.2
27.5°	436.5	462.1	447.0	466.6	476.2
30°	419.0	440.8	433.0	460.3	477.4
32.5°	402.6	418.6	421.5	457.9	460.7
35°	387.1	397.9	403.8	440.5	455.5
37.5°	370.1	373.0	388.9	433.3	447.7
40°	352.7	350.9	376.3	421.3	441.3
42.5°	334.1	333.4	362.9	415.3	425.3
45°	316.4	317.8	343.9	398.4	413.3
47.5°	298.2	300.1	325.9	379.9	398.3
50°	277.2	279.6	309.9	363.4	387.1
52.5°	254.4	259.0	294.2	347.7	371.7
55°	233.0	236.8	274.4	334.4	361.0
57.5°	213.5	215.8	253.9	317.6	337.6
60°	194.3	194.8	234.5	298.9	318.1
62.5°	172.2	173.2	214.7	276.9	302.6
65°	147.5	152.2	193.3	255.8	279.0
67.5°	124.4	132.5	171.5	236.5	248.6
70°	99.6	113.4	150.1	213.8	222.4
72.5°	76.9	93.1	128.2	188.4	200.5
75°	55.8	73.9	107.8	165.6	176.0
77.5°	37.6	56.0	88.7	140.4	154.2
80°	22.5	40.9	71.6	117.1	132.6
82.5°	11.5	27.5	55.6	98.2	112.1
85°	5.0	17.4	42.0	81.5	93.6
87.5°	1.4	9.9	30.9	65.9	76.1
90°	0.1	5.2	22.0	51.7	60.9
92.5°	0.1	2.5	15.5	39.1	46.1
95°	0.1	1.3	9.7	28.3	34.6
97.5°	0.1	0.8	5.9	20.1	25.4
100°	0.1	0.7	3.5	13.3	18.1
102.5°	0.1	0.8	2.4	8.5	11.8
105°	0.1	0.8	2.0	5.5	7.8
107.5°	0.2	0.8	1.7	4.1	5.4
110°	0.1	0.7	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	0.8	2.2	2.6
125°	0.1	0.2	0.7	1.6	2.3
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	0.8	1.0
135°	0.2	0.2	0.2	0.5	0.8
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)