

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: P517236

Luminaire Tested: HVL12-1-LD4-2STD-40-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: P517236
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-2STD-40-UNV-C-EDD
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1840.0 lumens
Efficiency: N/A
Efficacy: 109.5 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 1' x H: 0.17')
CIE Type: Direct

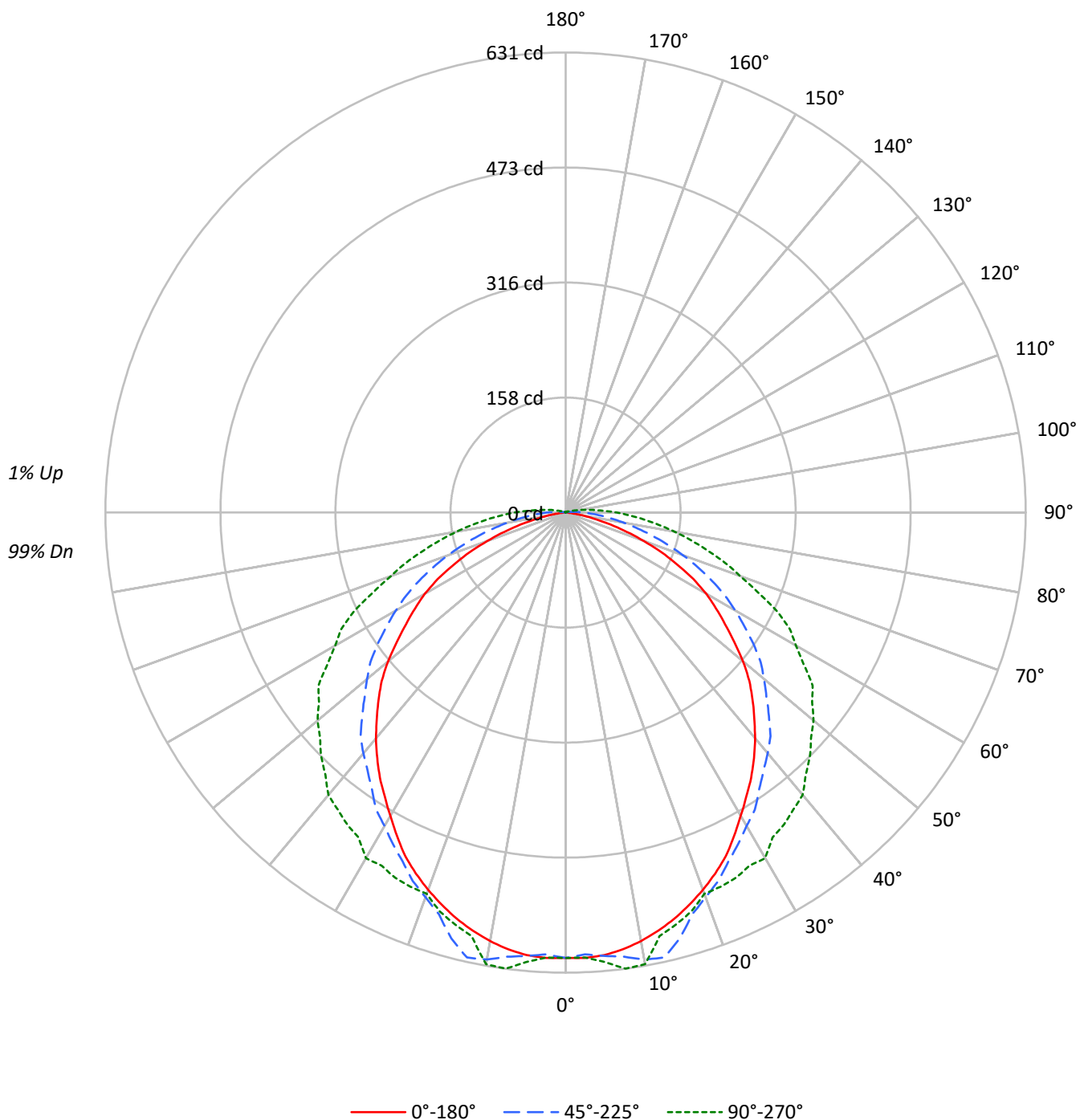
Input Watts (W): 16.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6575	6575	6575
5°	6489	6460	6589
10°	6335	6531	6677
15°	6152	6338	6240
20°	5946	5922	6010
25°	5733	5652	6092
30°	5447	5431	6205
35°	5222	5222	6145
40°	4985	5061	6236
45°	4732	4857	6182
50°	4440	4643	6200
55°	4049	4415	6272
60°	3720	4110	6092
65°	3173	3749	6002
70°	2465	3287	5502
75°	1641	2732	5174
80°	822	2178	4843
85°	242	1611	4561

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6272 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.7	3.2
10°-20°	167.2	9.1
20°-30°	248.7	13.5
30°-40°	299.0	16.2
40°-50°	314.7	17.1
50°-60°	292.0	15.9
60°-70°	230.9	12.5
70°-80°	141.0	7.7
80°-90°	61.4	3.3
90°-100°	19.1	1.0
100°-110°	4.3	0.2
110°-120°	1.7	0.1
120°-130°	1.0	0.1
130°-140°	0.3	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°	474.6	25.8
0°-40°	773.6	42.0
0°-60°	1380.3	75.0
0°-90°	1813.6	98.6
90°-120°	25.1	1.4
90°-150°	26.4	1.4
90°-180°	26.0	1.4
0°-180°	1840.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	611	611	611	611	611	
5°	609	608	610	617	619	58
15°	577	599	605	585	585	162
25°	520	553	528	544	553	239
35°	444	456	463	505	522	277
45°	363	364	394	457	474	280
55°	267	272	314	383	414	240
65°	169	174	222	293	320	167
75°	64	85	124	190	202	70
85°	6	20	48	93	107	9
90°	0	6	25	59	70	0
95°	0	2	11	32	40	0
105°	0	1	2	6	9	0
115°	0	0	2	3	3	0
125°	0	0	1	2	3	0
135°	0	0	0	1	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°	610.8	610.8	610.8	610.8	610.8
2.5°	611.5	609.9	606.5	609.8	610.7
5°	609.3	608.0	610.2	617.0	618.7
7.5°	604.2	608.9	614.5	627.0	630.9
10°	596.6	605.6	622.4	632.9	628.8
12.5°	587.4	602.6	625.1	604.4	594.9
15°	576.7	598.8	604.7	584.7	585.0
17.5°	564.1	595.7	577.7	577.2	573.6
20°	550.6	585.3	561.4	560.4	556.5
22.5°	536.0	571.5	547.0	545.0	555.4
25°	520.2	553.4	528.2	544.0	552.8
27.5°	500.4	529.8	512.5	534.9	546.0
30°	480.4	505.4	496.4	527.7	547.3
32.5°	461.6	479.9	483.2	524.9	528.2
35°	443.8	456.1	463.0	505.0	522.2
37.5°	424.3	427.6	445.8	496.7	513.2
40°	404.4	402.3	431.4	483.0	505.9
42.5°	383.0	382.2	416.1	476.2	487.6
45°	362.7	364.3	394.3	456.7	473.8
47.5°	341.9	344.0	373.6	435.5	456.6
50°	317.8	320.5	355.2	416.6	443.8
52.5°	291.6	296.9	337.3	398.6	426.1
55°	267.1	271.5	314.5	383.3	413.8
57.5°	244.7	247.3	291.0	364.1	387.1
60°	222.7	223.3	268.9	342.7	364.7
62.5°	197.5	198.6	246.1	317.4	346.9
65°	169.1	174.4	221.6	293.3	319.9
67.5°	142.6	151.9	196.6	271.1	285.0
70°	114.2	130.0	172.1	245.1	254.9
72.5°	88.2	106.8	146.9	216.0	229.8
75°	64.0	84.7	123.5	189.9	201.8
77.5°	43.0	64.2	101.7	161.0	176.8
80°	25.8	46.9	82.1	134.2	152.0
82.5°	13.2	31.5	63.7	112.6	128.5
85°	5.7	19.9	48.2	93.4	107.3
87.5°	1.6	11.3	35.5	75.5	87.2
90°	0.1	6.0	25.3	59.2	69.8
92.5°	0.1	2.9	17.8	44.8	52.9
95°	0.1	1.5	11.1	32.5	39.7
97.5°	0.1	0.9	6.7	23.0	29.1
100°	0.1	0.7	4.0	15.3	20.8
102.5°	0.1	0.9	2.7	9.7	13.6
105°	0.1	0.9	2.2	6.3	9.0
107.5°	0.2	0.9	2.0	4.7	6.2
110°	0.1	0.7	2.1	3.6	4.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.6	2.0	3.0	3.6
115°	0.1	0.5	1.7	2.9	3.0
117.5°	0.2	0.4	1.4	2.9	3.0
120°	0.2	0.2	1.1	2.7	3.1
122.5°	0.2	0.2	0.9	2.5	3.0
125°	0.1	0.2	0.7	1.9	2.6
127.5°	0.2	0.2	0.6	1.5	2.0
130°	0.2	0.2	0.5	1.1	1.5
132.5°	0.2	0.2	0.4	0.9	1.1
135°	0.2	0.2	0.2	0.6	0.9
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)