

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: P517331

Luminaire Tested: HVL12-2-LD4-1STD-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: P517331
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-1STD-40-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1628.0 lumens
Efficiency: N/A
Efficacy: 97.5 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

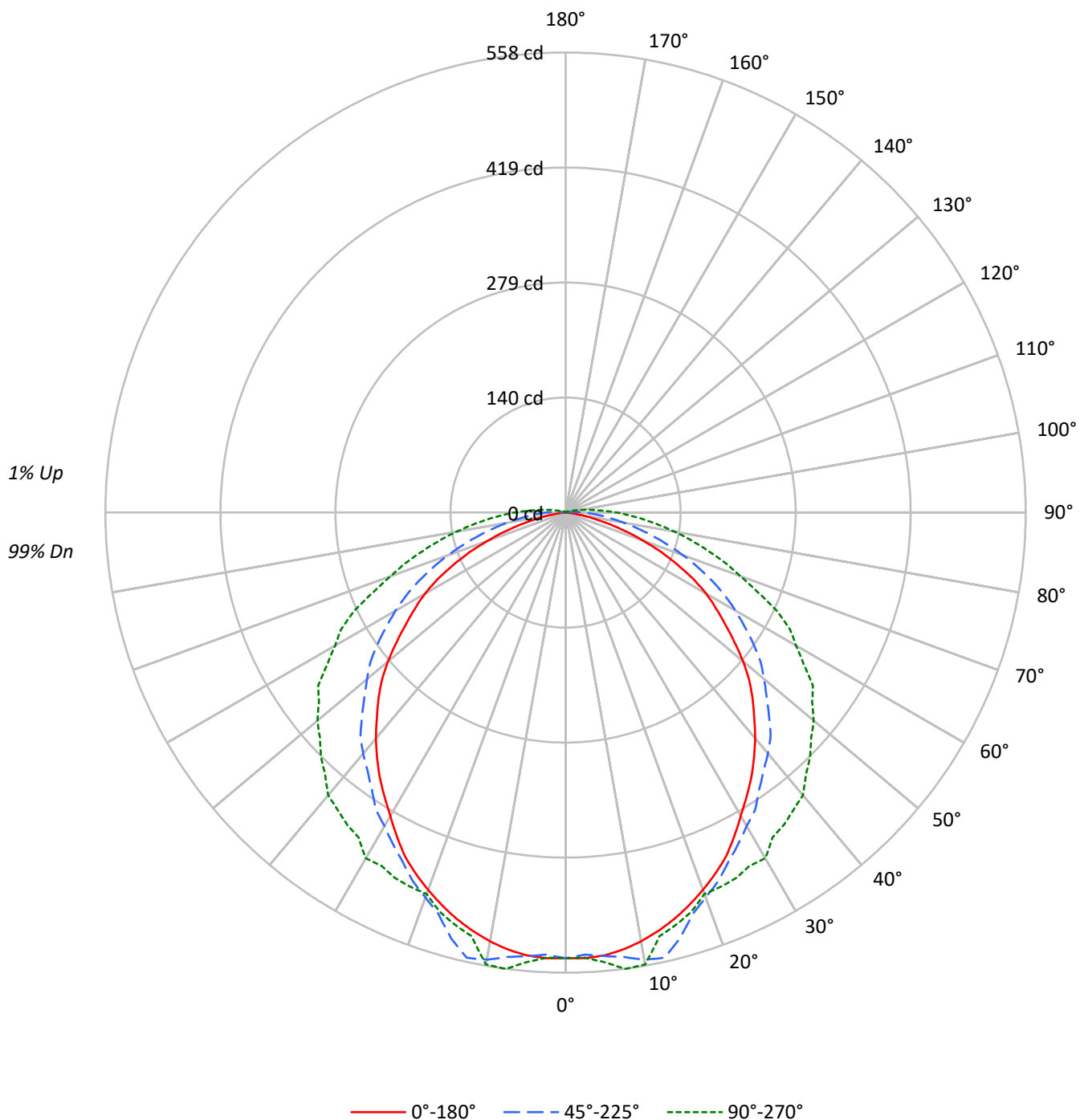
Input Watts (W): 16.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	2908	2908	2908
5°	2891	2872	2915
10°	2843	2918	2954
15°	2781	2846	2761
20°	2708	2673	2659
25°	2631	2564	2695
30°	2520	2477	2745
35°	2438	2395	2718
40°	2349	2335	2759
45°	2255	2257	2735
50°	2142	2174	2743
55°	1982	2085	2775
60°	1854	1960	2695
65°	1616	1811	2655
70°	1294	1612	2435
75°	898	1369	2289
80°	480	1125	2143
85°	161	871	2017

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2775 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.9	3.2
10°-20°	147.9	9.1
20°-30°	220.1	13.5
30°-40°	264.5	16.2
40°-50°	278.4	17.1
50°-60°	258.4	15.9
60°-70°	204.3	12.5
70°-80°	124.8	7.7
80°-90°	54.4	3.3
90°-100°	16.9	1.0
100°-110°	3.8	0.2
110°-120°	1.5	0.1
120°-130°	0.9	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°	419.9	25.8
0°-40°	684.5	42.0
0°-60°	1221.2	75.0
0°-90°	1604.7	98.6
90°-120°	22.2	1.4
90°-150°	23.3	1.4
90°-180°	23.0	1.4
0°-180°	1628.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	540	540	540	540	540	
5°	539	538	540	546	548	51
15°	510	530	535	517	518	144
25°	460	490	467	481	489	211
35°	393	404	410	447	462	245
45°	321	322	349	404	419	247
55°	236	240	278	339	366	212
65°	150	154	196	260	283	148
75°	57	75	109	168	179	62
85°	5	18	43	83	95	8
90°	0	5	22	52	62	0
95°	0	1	10	29	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	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°	540.4	540.4	540.4	540.4	540.4
2.5°	541.1	539.6	536.7	539.5	540.3
5°	539.1	538.0	539.9	545.9	547.5
7.5°	534.6	538.8	543.7	554.7	558.2
10°	527.9	535.8	550.6	560.0	556.4
12.5°	519.7	533.1	553.1	534.8	526.3
15°	510.2	529.8	535.0	517.3	517.6
17.5°	499.1	527.1	511.1	510.7	507.5
20°	487.1	517.8	496.7	495.8	492.4
22.5°	474.2	505.6	483.9	482.2	491.4
25°	460.3	489.7	467.3	481.3	489.1
27.5°	442.8	468.7	453.4	473.3	483.1
30°	425.0	447.2	439.2	466.9	484.3
32.5°	408.4	424.6	427.6	464.4	467.3
35°	392.7	403.6	409.6	446.8	462.0
37.5°	375.4	378.4	394.4	439.5	454.1
40°	357.8	355.9	381.7	427.4	447.6
42.5°	338.8	338.2	368.1	421.3	431.4
45°	320.9	322.3	348.9	404.1	419.2
47.5°	302.5	304.4	330.6	385.3	404.0
50°	281.2	283.6	314.3	368.6	392.7
52.5°	258.0	262.7	298.4	352.7	377.0
55°	236.4	240.2	278.3	339.2	366.1
57.5°	216.5	218.8	257.5	322.1	342.5
60°	197.1	197.6	237.9	303.2	322.7
62.5°	174.7	175.7	217.7	280.8	306.9
65°	149.6	154.3	196.1	259.5	283.0
67.5°	126.2	134.4	173.9	239.9	252.2
70°	101.1	115.0	152.2	216.9	225.6
72.5°	78.1	94.5	130.0	191.1	203.3
75°	56.6	75.0	109.3	168.0	178.6
77.5°	38.1	56.8	89.9	142.5	156.4
80°	22.8	41.5	72.7	118.8	134.5
82.5°	11.7	27.9	56.4	99.6	113.7
85°	5.1	17.6	42.6	82.7	94.9
87.5°	1.4	10.0	31.4	66.8	77.2
90°	0.1	5.3	22.3	52.4	61.8
92.5°	0.1	2.5	15.7	39.6	46.8
95°	0.1	1.3	9.8	28.7	35.1
97.5°	0.1	0.8	5.9	20.4	25.8
100°	0.1	0.7	3.5	13.5	18.4
102.5°	0.1	0.8	2.4	8.6	12.0
105°	0.1	0.8	2.0	5.6	7.9
107.5°	0.2	0.8	1.8	4.2	5.5
110°	0.1	0.7	1.9	3.2	4.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.6	1.8	2.6	3.2
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	2.8
122.5°	0.2	0.2	0.8	2.2	2.6
125°	0.1	0.2	0.7	1.7	2.3
127.5°	0.2	0.2	0.6	1.3	1.8
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	0.6	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)