

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: P517247

Luminaire Tested: HVL12-1-LD4-3HI-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: P517247
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3HI-35-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3094.0 lumens
Efficiency: N/A
Efficacy: 95.8 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

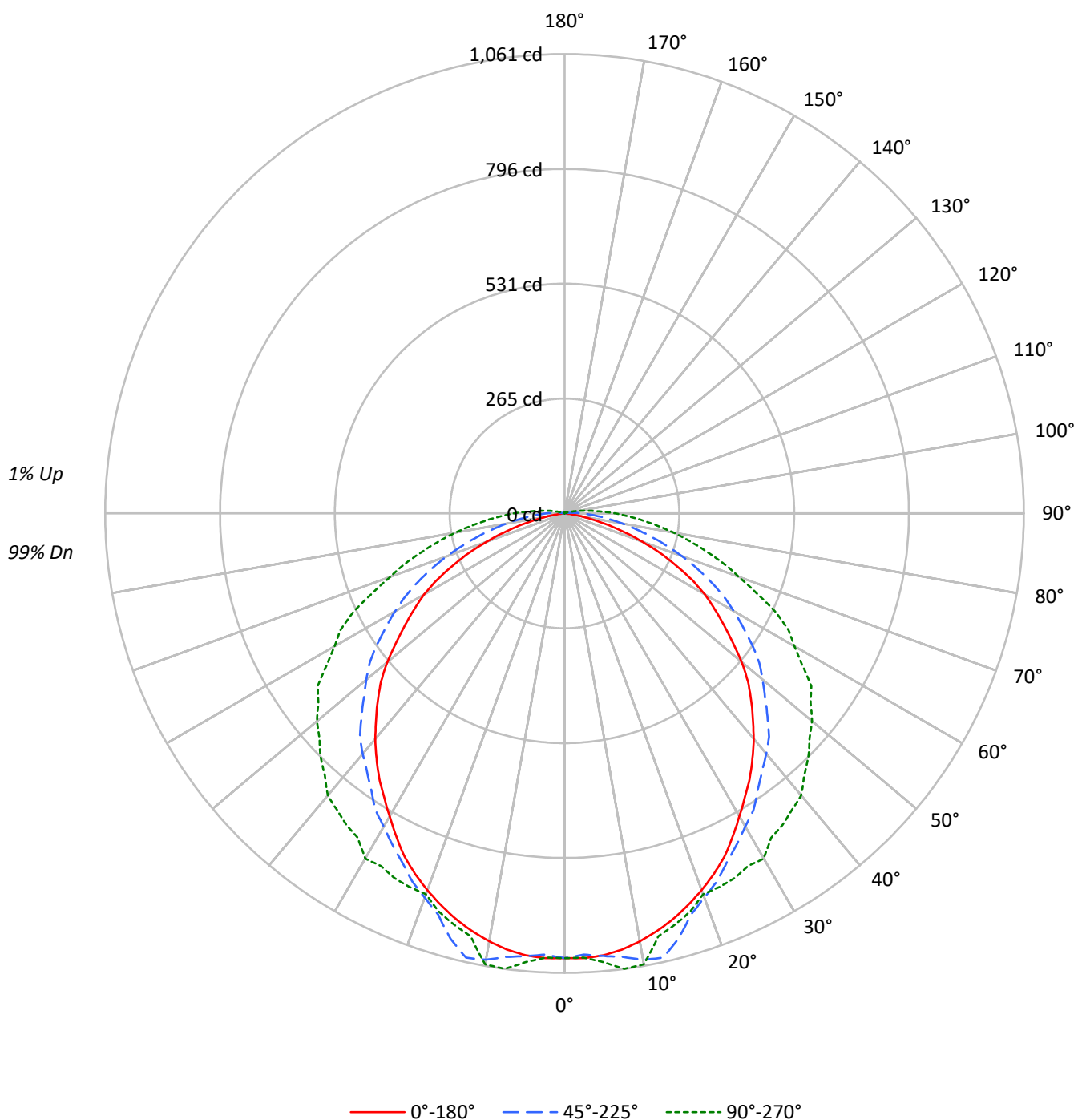
Input Watts (W): 32.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	11055	11055	11055
5°	10911	10862	11080
10°	10652	10982	11227
15°	10344	10658	10493
20°	9998	9959	10106
25°	9639	9503	10243
30°	9159	9133	10434
35°	8782	8780	10332
40°	8382	8509	10487
45°	7958	8167	10395
50°	7464	7808	10426
55°	6809	7425	10548
60°	6256	6911	10243
65°	5334	6303	10092
70°	4147	5526	9254
75°	2756	4597	8699
80°	1380	3663	8147
85°	408	2708	7664

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 10548 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.7	3.2
10°-20°	281.1	9.1
20°-30°	418.2	13.5
30°-40°	502.7	16.2
40°-50°	529.2	17.1
50°-60°	491.0	15.9
60°-70°	388.2	12.5
70°-80°	237.1	7.7
80°-90°	103.3	3.3
90°-100°	32.2	1.0
100°-110°	7.2	0.2
110°-120°	2.9	0.1
120°-130°	1.6	0.1
130°-140°	0.4	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°	798.1	25.8
0°-40°	1300.8	42.0
0°-60°	2321.0	75.0
0°-90°	3049.6	98.6
90°-120°	42.3	1.4
90°-150°	44.4	1.4
90°-180°	44.0	1.4
0°-180°	3094.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1027	1027	1027	1027	1027	
5°	1024	1022	1026	1038	1040	97
15°	970	1007	1017	983	984	273
25°	875	931	888	915	930	402
35°	746	767	778	849	878	466
45°	610	613	663	768	797	470
55°	449	456	529	645	696	404
65°	284	293	373	493	538	282
75°	108	142	208	319	339	117
85°	10	34	81	157	180	15
90°	0	10	42	100	117	0
95°	0	2	19	55	67	0
105°	0	2	4	11	15	0
115°	0	1	3	5	5	0
125°	0	0	1	3	4	0
135°	0	0	0	1	2	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°	1027.0	1027.0	1027.0	1027.0	1027.0
2.5°	1028.3	1025.6	1019.9	1025.4	1026.8
5°	1024.5	1022.4	1026.0	1037.5	1040.4
7.5°	1016.0	1023.9	1033.3	1054.2	1060.9
10°	1003.2	1018.3	1046.5	1064.3	1057.4
12.5°	987.7	1013.2	1051.1	1016.4	1000.3
15°	969.7	1007.0	1016.8	983.1	983.7
17.5°	948.6	1001.7	971.4	970.6	964.5
20°	925.8	984.2	944.0	942.3	935.8
22.5°	901.3	960.9	919.7	916.4	933.9
25°	874.7	930.6	888.1	914.7	929.5
27.5°	841.5	890.8	861.8	899.4	918.0
30°	807.8	849.8	834.8	887.3	920.3
32.5°	776.2	806.9	812.6	882.7	888.1
35°	746.3	767.0	778.5	849.2	878.1
37.5°	713.4	719.1	749.6	835.2	863.0
40°	680.0	676.4	725.4	812.2	850.7
42.5°	644.0	642.7	699.6	800.7	819.9
45°	609.9	612.6	663.0	768.0	796.7
47.5°	574.9	578.5	628.3	732.3	767.8
50°	534.3	538.9	597.3	700.5	746.3
52.5°	490.4	499.2	567.2	670.3	716.6
55°	449.2	456.5	528.9	644.6	695.9
57.5°	411.5	415.9	489.4	612.2	650.9
60°	374.5	375.5	452.1	576.2	613.2
62.5°	332.0	333.9	413.8	533.7	583.3
65°	284.3	293.3	372.6	493.1	537.9
67.5°	239.8	255.5	330.6	455.9	479.3
70°	192.1	218.6	289.3	412.2	428.7
72.5°	148.3	179.5	247.1	363.2	386.4
75°	107.5	142.5	207.8	319.3	339.3
77.5°	72.4	108.0	170.9	270.7	297.3
80°	43.3	78.9	138.1	225.7	255.7
82.5°	22.2	52.9	107.1	189.3	216.1
85°	9.6	33.5	81.0	157.1	180.3
87.5°	2.7	19.0	59.6	127.0	146.7
90°	0.2	10.0	42.5	99.6	117.4
92.5°	0.2	4.8	29.9	75.3	88.9
95°	0.2	2.5	18.6	54.6	66.7
97.5°	0.2	1.5	11.3	38.7	49.0
100°	0.2	1.3	6.7	25.7	34.9
102.5°	0.2	1.5	4.6	16.3	22.8
105°	0.2	1.5	3.8	10.7	15.1
107.5°	0.4	1.5	3.3	8.0	10.5
110°	0.2	1.3	3.6	6.1	8.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.3	5.0	6.1
115°	0.2	0.8	2.9	4.8	5.0
117.5°	0.4	0.6	2.3	4.8	5.0
120°	0.4	0.4	1.9	4.6	5.2
122.5°	0.4	0.4	1.5	4.2	5.0
125°	0.2	0.4	1.3	3.1	4.4
127.5°	0.4	0.4	1.0	2.5	3.3
130°	0.4	0.4	0.8	1.9	2.5
132.5°	0.4	0.4	0.6	1.5	1.9
135°	0.4	0.4	0.4	1.0	1.5
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)