

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: P517379

Luminaire Tested: HVL12-2-LD4-2STD-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: P517379
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-2STD-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: 3092.0 lumens
Efficiency: N/A
Efficacy: 92.0 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

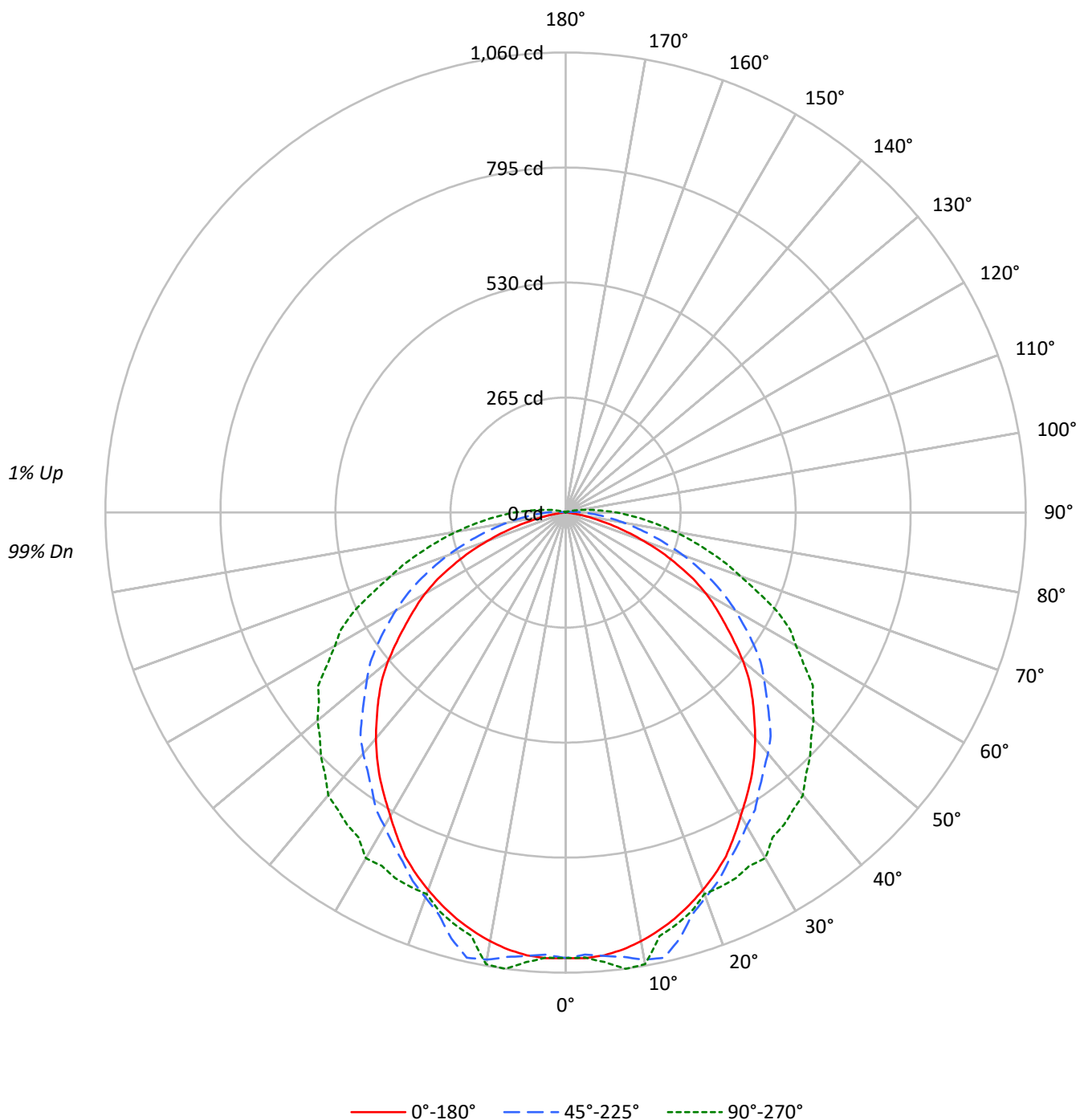
Input Watts (W): 33.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		101
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		87
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		76
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		67
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		60
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		54
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		49
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		44
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		41
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		38
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		35

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5524	5524	5524
5°	5492	5455	5537
10°	5399	5542	5610
15°	5282	5405	5243
20°	5143	5076	5050
25°	4997	4869	5118
30°	4787	4704	5214
35°	4630	4548	5163
40°	4462	4435	5240
45°	4282	4285	5194
50°	4067	4128	5210
55°	3764	3960	5270
60°	3521	3723	5118
65°	3069	3439	5042
70°	2457	3063	4624
75°	1705	2601	4347
80°	911	2136	4071
85°	304	1654	3830

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 5270 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.6	3.2
10°-20°	280.9	9.1
20°-30°	418.0	13.5
30°-40°	502.4	16.2
40°-50°	528.8	17.1
50°-60°	490.7	15.9
60°-70°	388.0	12.5
70°-80°	237.0	7.7
80°-90°	103.2	3.3
90°-100°	32.1	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°	797.5	25.8
0°-40°	1300.0	42.0
0°-60°	2319.5	75.0
0°-90°	3047.7	98.6
90°-120°	42.3	1.4
90°-150°	44.3	1.4
90°-180°	44.0	1.4
0°-180°	3092.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1026	1026	1026	1026	1026	
5°	1024	1022	1025	1037	1040	97
15°	969	1006	1016	982	983	273
25°	874	930	888	914	929	401
35°	746	766	778	849	878	466
45°	610	612	663	768	796	470
55°	449	456	529	644	695	403
65°	284	293	372	493	538	281
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°	1026.4	1026.4	1026.4	1026.4	1026.4
2.5°	1027.6	1024.9	1019.3	1024.7	1026.2
5°	1023.9	1021.8	1025.3	1036.8	1039.8
7.5°	1015.3	1023.2	1032.6	1053.6	1060.2
10°	1002.5	1017.6	1045.8	1063.6	1056.7
12.5°	987.1	1012.6	1050.4	1015.7	999.6
15°	969.1	1006.3	1016.1	982.5	983.1
17.5°	948.0	1001.1	970.8	969.9	963.9
20°	925.2	983.5	943.4	941.7	935.2
22.5°	900.7	960.3	919.1	915.8	933.3
25°	874.2	930.0	887.5	914.1	928.9
27.5°	840.9	890.3	861.2	898.8	917.4
30°	807.3	849.3	834.2	886.7	919.7
32.5°	775.7	806.4	812.1	882.1	887.5
35°	745.8	766.5	778.0	848.7	877.5
37.5°	713.0	718.6	749.1	834.6	862.5
40°	679.5	676.0	724.9	811.7	850.1
42.5°	643.5	642.3	699.2	800.2	819.4
45°	609.5	612.2	662.6	767.5	796.2
47.5°	574.6	578.1	627.9	731.8	767.3
50°	534.0	538.6	596.9	700.0	745.8
52.5°	490.1	498.9	566.8	669.9	716.1
55°	448.9	456.2	528.6	644.2	695.4
57.5°	411.3	415.7	489.0	611.8	650.4
60°	374.3	375.3	451.8	575.8	612.8
62.5°	331.8	333.7	413.6	533.4	582.9
65°	284.1	293.1	372.4	492.8	537.5
67.5°	239.6	255.3	330.3	455.6	479.0
70°	191.9	218.5	289.2	411.9	428.4
72.5°	148.2	179.4	246.9	363.0	386.2
75°	107.5	142.4	207.6	319.1	339.1
77.5°	72.3	107.9	170.8	270.6	297.1
80°	43.3	78.8	138.0	225.6	255.5
82.5°	22.2	52.9	107.0	189.2	216.0
85°	9.6	33.5	80.9	157.0	180.2
87.5°	2.7	19.0	59.6	126.9	146.6
90°	0.2	10.0	42.4	99.5	117.3
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	48.9
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	7.9	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)