

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: P518043

Luminaire Tested: HVL8-4-LD4-1STD-30-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: P518043
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1STD-30-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3502.0 lumens
Efficiency: N/A
Efficacy: 107.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

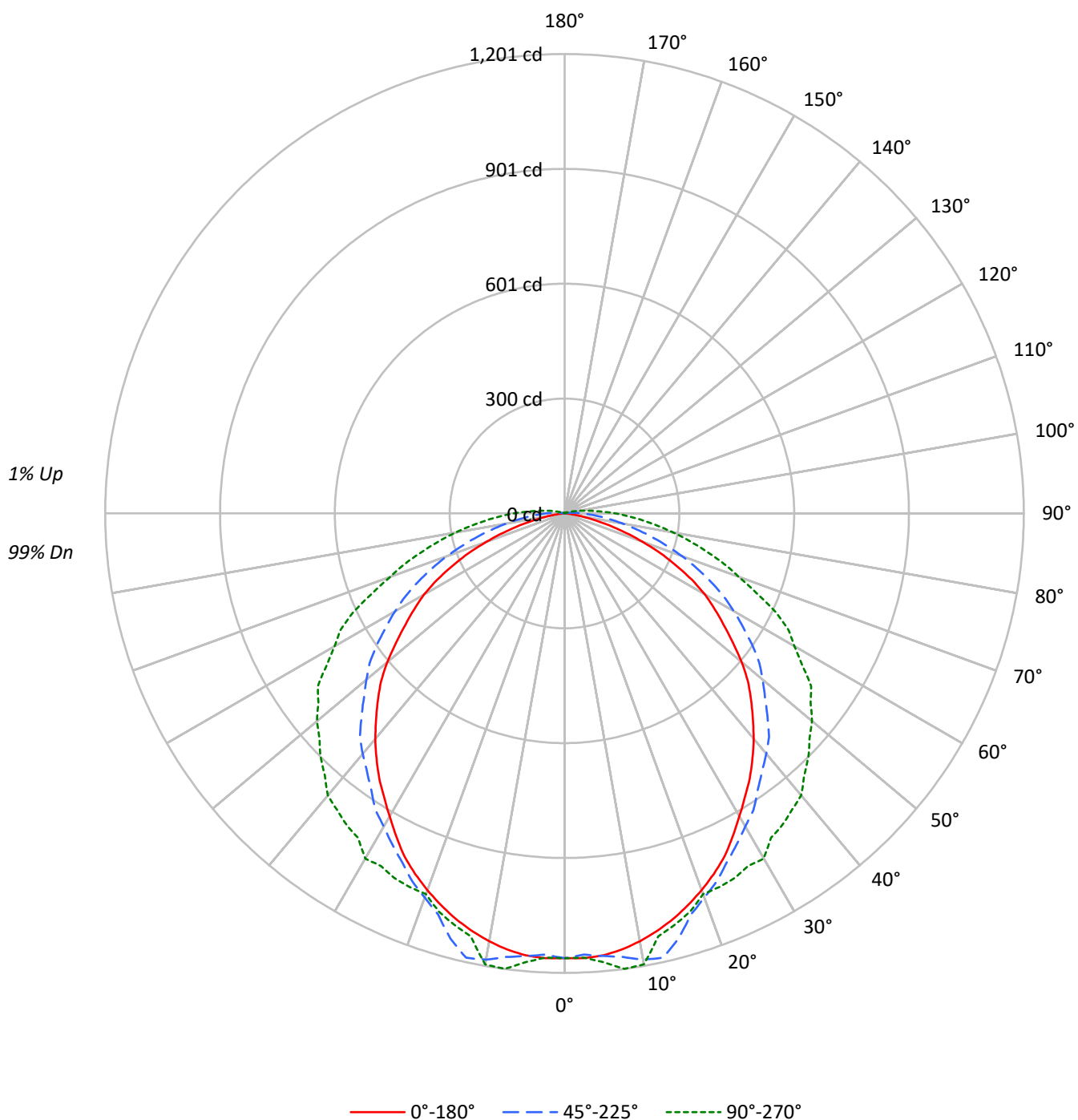
Input Watts (W): 32.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	4692	4692	4692
5°	4681	4622	4669
10°	4620	4685	4698
15°	4536	4558	4361
20°	4434	4269	4170
25°	4326	4084	4196
30°	4161	3935	4243
35°	4044	3794	4168
40°	3918	3688	4193
45°	3783	3551	4118
50°	3618	3408	4087
55°	3377	3254	4084
60°	3192	3044	3910
65°	2821	2792	3785
70°	2302	2467	3394
75°	1643	2072	3099
80°	921	1674	2782
85°	342	1263	2450

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4118 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.7	3.2
10°-20°	318.2	9.1
20°-30°	473.4	13.5
30°-40°	569.0	16.2
40°-50°	598.9	17.1
50°-60°	555.8	15.9
60°-70°	439.4	12.5
70°-80°	268.4	7.7
80°-90°	116.9	3.3
90°-100°	36.4	1.0
100°-110°	8.2	0.2
110°-120°	3.3	0.1
120°-130°	1.9	0.1
130°-140°	0.5	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°	903.3	25.8
0°-40°	1472.3	42.0
0°-60°	2627.0	75.0
0°-90°	3451.8	98.6
90°-120°	47.9	1.4
90°-150°	50.2	1.4
90°-180°	50.0	1.4
0°-180°	3502.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1162	1162	1162	1162	1162	
5°	1160	1157	1161	1174	1178	110
15°	1098	1140	1151	1113	1114	309
25°	990	1053	1005	1035	1052	455
35°	845	868	881	961	994	528
45°	690	693	750	869	902	532
55°	508	517	599	730	788	457
65°	322	332	422	558	609	319
75°	122	161	235	361	384	133
85°	11	38	92	178	204	17
90°	0	11	48	113	133	1
95°	0	3	21	62	76	0
105°	0	2	4	12	17	0
115°	0	1	3	5	6	0
125°	0	0	1	4	5	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°	1162.5	1162.5	1162.5	1162.5	1162.5
2.5°	1163.9	1160.8	1154.4	1160.6	1162.2
5°	1159.6	1157.3	1161.3	1174.3	1177.6
7.5°	1149.9	1158.9	1169.6	1193.3	1200.8
10°	1135.5	1152.5	1184.5	1204.6	1196.8
12.5°	1118.0	1146.8	1189.7	1150.4	1132.2
15°	1097.6	1139.7	1150.9	1112.7	1113.5
17.5°	1073.7	1133.8	1099.5	1098.5	1091.7
20°	1047.9	1113.9	1068.5	1066.6	1059.2
22.5°	1020.2	1087.6	1041.0	1037.2	1057.1
25°	990.1	1053.3	1005.2	1035.3	1052.1
27.5°	952.4	1008.3	975.4	1018.0	1039.1
30°	914.3	961.9	944.9	1004.3	1041.7
32.5°	878.5	913.4	919.7	999.1	1005.2
35°	844.7	868.1	881.1	961.2	993.9
37.5°	807.5	813.9	848.5	945.3	976.8
40°	769.6	765.6	821.0	919.3	962.8
42.5°	728.9	727.5	791.9	906.3	928.0
45°	690.3	693.4	750.4	869.3	901.8
47.5°	650.7	654.8	711.1	828.8	869.1
50°	604.8	610.0	676.1	792.8	844.7
52.5°	555.1	565.0	642.0	758.7	811.1
55°	508.4	516.7	598.6	729.6	787.6
57.5°	465.8	470.8	553.9	692.9	736.7
60°	423.9	425.1	511.7	652.2	694.1
62.5°	375.8	377.9	468.4	604.1	660.2
65°	321.8	332.0	421.7	558.1	608.8
67.5°	271.4	289.1	374.2	516.0	542.5
70°	217.4	247.5	327.5	466.5	485.2
72.5°	167.9	203.2	279.7	411.1	437.4
75°	121.7	161.3	235.1	361.4	384.1
77.5°	81.9	122.2	193.5	306.4	336.5
80°	49.0	89.3	156.3	255.5	289.4
82.5°	25.1	59.9	121.2	214.3	244.6
85°	10.9	37.9	91.6	177.8	204.1
87.5°	3.1	21.5	67.5	143.7	166.0
90°	0.2	11.4	48.1	112.7	132.8
92.5°	0.2	5.4	33.9	85.2	100.6
95°	0.2	2.8	21.1	61.8	75.5
97.5°	0.2	1.7	12.8	43.8	55.4
100°	0.2	1.4	7.6	29.1	39.5
102.5°	0.2	1.7	5.2	18.5	25.8
105°	0.2	1.7	4.3	12.1	17.0
107.5°	0.5	1.7	3.8	9.0	11.8
110°	0.2	1.4	4.0	6.9	9.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.2	3.8	5.7	6.9
115°	0.2	0.9	3.3	5.4	5.7
117.5°	0.5	0.7	2.6	5.4	5.7
120°	0.5	0.5	2.1	5.2	5.9
122.5°	0.5	0.5	1.7	4.7	5.7
125°	0.2	0.5	1.4	3.6	5.0
127.5°	0.5	0.5	1.2	2.8	3.8
130°	0.5	0.5	0.9	2.1	2.8
132.5°	0.5	0.5	0.7	1.7	2.1
135°	0.5	0.5	0.5	1.2	1.7
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)