

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: P517983

Luminaire Tested: HVL8-2-LD4-3LO-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: P517983
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-3LO-35-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3575.0 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

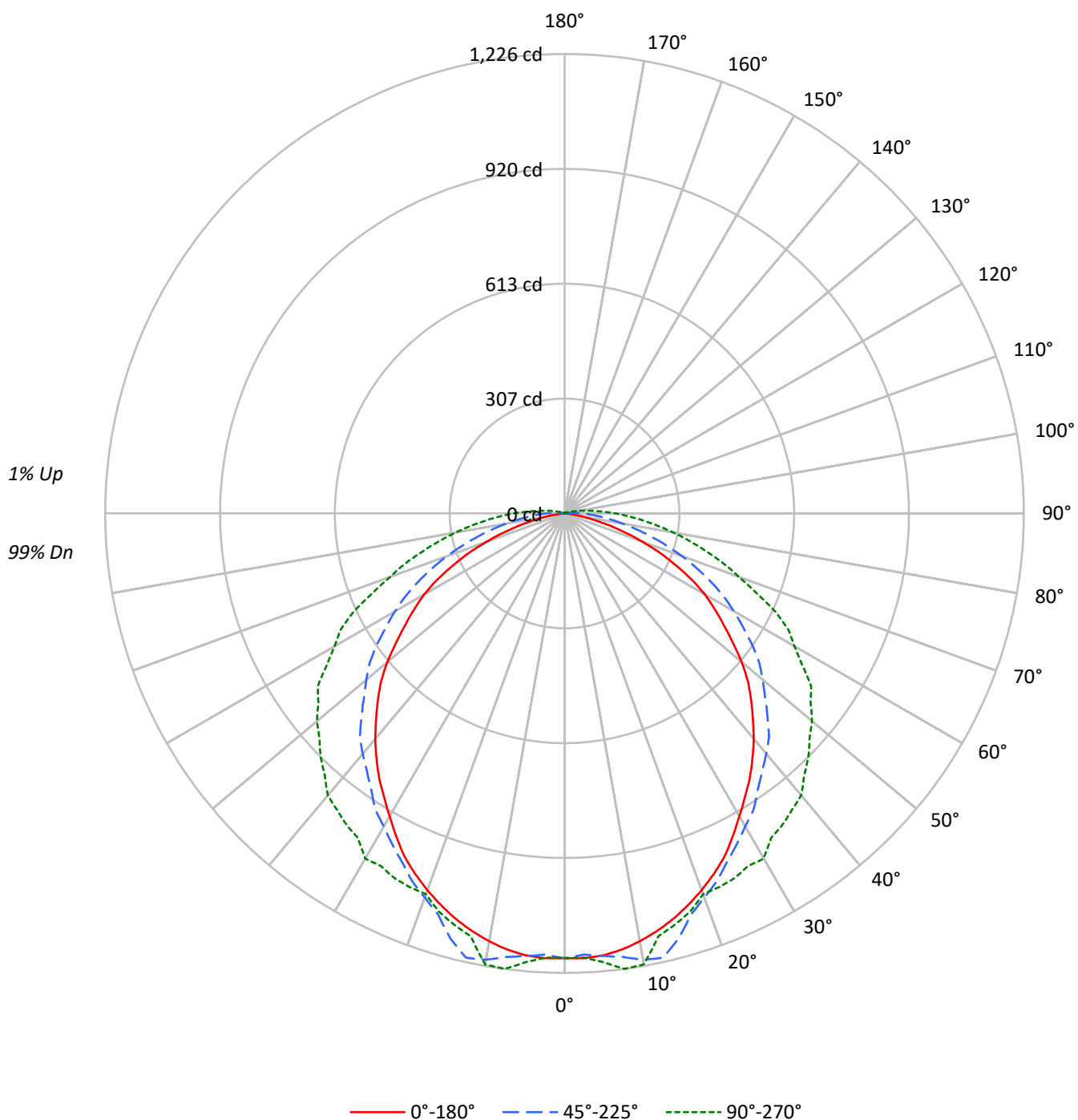
Input Watts (W): 33.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		99
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		81
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		47
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		41
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	9580	9580	9580
5°	9524	9413	9534
10°	9364	9517	9593
15°	9160	9236	8904
20°	8919	8630	8515
25°	8666	8236	8568
30°	8302	7914	8662
35°	8030	7609	8509
40°	7739	7374	8562
45°	7426	7078	8407
50°	7053	6767	8344
55°	6528	6435	8338
60°	6105	5989	7982
65°	5324	5462	7728
70°	4262	4789	6930
75°	2957	3982	6326
80°	1578	3173	5679
85°	527	2347	5003

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8407 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	114.1	3.2
10°-20°	324.8	9.1
20°-30°	483.3	13.5
30°-40°	580.9	16.2
40°-50°	611.4	17.1
50°-60°	567.3	15.9
60°-70°	448.6	12.5
70°-80°	274.0	7.7
80°-90°	119.4	3.3
90°-100°	37.2	1.0
100°-110°	8.4	0.2
110°-120°	3.4	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°	922.1	25.8
0°-40°	1503.0	42.0
0°-60°	2681.8	75.0
0°-90°	3523.7	98.6
90°-120°	48.9	1.4
90°-150°	51.3	1.4
90°-180°	51.0	1.4
0°-180°	3575.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1187	1187	1187	1187	1187	
5°	1184	1181	1186	1199	1202	112
15°	1120	1164	1175	1136	1137	316
25°	1011	1075	1026	1057	1074	464
35°	862	886	900	981	1015	539
45°	705	708	766	887	920	543
55°	519	528	611	745	804	466
65°	328	339	430	570	622	325
75°	124	165	240	369	392	136
85°	11	39	94	182	208	17
90°	0	12	49	115	136	1
95°	0	3	22	63	77	0
105°	0	2	4	12	17	0
115°	0	1	3	6	6	0
125°	0	0	2	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°	1186.7	1186.7	1186.7	1186.7	1186.7
2.5°	1188.2	1185.0	1178.5	1184.8	1186.5
5°	1183.8	1181.4	1185.5	1198.8	1202.2
7.5°	1173.9	1183.1	1194.0	1218.1	1225.9
10°	1159.1	1176.6	1209.2	1229.7	1221.8
12.5°	1141.3	1170.8	1214.5	1174.4	1155.8
15°	1120.5	1163.5	1174.9	1135.9	1136.7
17.5°	1096.1	1157.5	1122.4	1121.4	1114.4
20°	1069.7	1137.1	1090.7	1088.8	1081.3
22.5°	1041.4	1110.3	1062.7	1058.8	1079.1
25°	1010.7	1075.3	1026.2	1056.9	1074.1
27.5°	972.3	1029.3	995.7	1039.2	1060.8
30°	933.4	982.0	964.5	1025.2	1063.4
32.5°	896.9	932.4	938.9	1019.9	1026.2
35°	862.3	886.2	899.5	981.2	1014.6
37.5°	824.3	830.9	866.2	965.0	997.2
40°	785.7	781.5	838.1	938.4	982.9
42.5°	744.1	742.6	808.4	925.1	947.4
45°	704.7	707.8	766.1	887.4	920.5
47.5°	664.3	668.4	725.9	846.1	887.2
50°	617.4	622.7	690.2	809.3	862.3
52.5°	566.6	576.8	655.4	774.5	828.0
55°	519.0	527.5	611.1	744.8	804.0
57.5°	475.5	480.6	565.4	707.3	752.1
60°	432.7	433.9	522.4	665.8	708.5
62.5°	383.6	385.8	478.2	616.7	674.0
65°	328.5	338.9	430.5	569.8	621.5
67.5°	277.0	295.2	382.0	526.8	553.8
70°	221.9	252.6	334.3	476.2	495.3
72.5°	171.4	207.4	285.5	419.7	446.5
75°	124.3	164.6	240.0	368.9	392.1
77.5°	83.6	124.7	197.5	312.8	343.5
80°	50.0	91.1	159.5	260.8	295.4
82.5°	25.6	61.2	123.8	218.8	249.7
85°	11.1	38.7	93.6	181.5	208.4
87.5°	3.1	22.0	68.9	146.7	169.5
90°	0.2	11.6	49.1	115.1	135.6
92.5°	0.2	5.6	34.6	87.0	102.7
95°	0.2	2.9	21.5	63.1	77.1
97.5°	0.2	1.7	13.1	44.7	56.6
100°	0.2	1.5	7.7	29.7	40.4
102.5°	0.2	1.7	5.3	18.9	26.3
105°	0.2	1.7	4.4	12.3	17.4
107.5°	0.5	1.7	3.9	9.2	12.1
110°	0.2	1.5	4.1	7.0	9.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.2	3.9	5.8	7.0
115°	0.2	1.0	3.4	5.6	5.8
117.5°	0.5	0.7	2.7	5.6	5.8
120°	0.5	0.5	2.2	5.3	6.0
122.5°	0.5	0.5	1.7	4.8	5.8
125°	0.2	0.5	1.5	3.6	5.1
127.5°	0.5	0.5	1.2	2.9	3.9
130°	0.5	0.5	1.0	2.2	2.9
132.5°	0.5	0.5	0.7	1.7	2.2
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)