

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: P517841

Luminaire Tested: HVL8-1-LD4-3LO-35-UNV-O-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: P517841
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-3LO-35-UNV-O-EDD-90
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1934.0 lumens
Efficiency: N/A
Efficacy: 115.1 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 1' x H: 0.17')
CIE Type: Direct

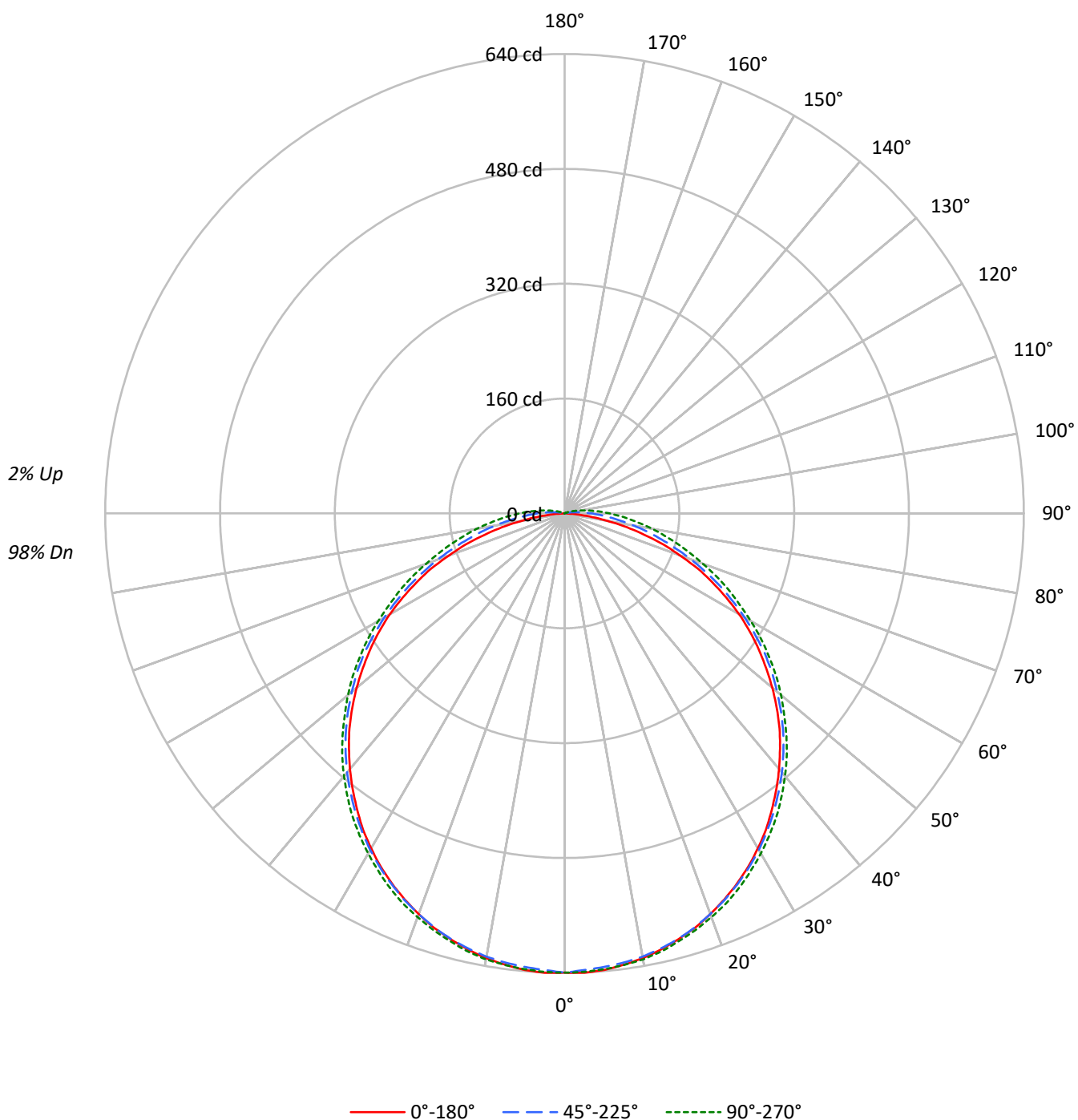
Input Watts (W): 16.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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			98
1	108	102	98	94	105	100	96	92	95	92	89	91	88	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	77	73	79	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	52	62	56	51	60	54	50			47
5	75	61	52	45	72	60	52	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	40	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°	10329	10329	10329
5°	10197	10020	10106
10°	10020	9769	9905
15°	9824	9503	9661
20°	9624	9218	9426
25°	9404	8928	9185
30°	9165	8624	8913
35°	8889	8300	8642
40°	8602	7963	8328
45°	8292	7601	7988
50°	7921	7192	7623
55°	7519	6752	7218
60°	7051	6202	6749
65°	6394	5600	6282
70°	5537	4904	5739
75°	4426	4156	5247
80°	2968	3422	4795
85°	1269	2680	4365

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 8292 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.5	3.1
10°-20°	173.6	9.0
20°-30°	263.5	13.6
30°-40°	318.6	16.5
40°-50°	332.4	17.2
50°-60°	303.9	15.7
60°-70°	236.9	12.2
70°-80°	148.2	7.7
80°-90°	67.3	3.5
90°-100°	22.6	1.2
100°-110°	5.7	0.3
110°-120°	0.9	0.0
120°-130°	0.0	0.0
130°-140°	0.0	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°	497.6	25.7
0°-40°	816.2	42.2
0°-60°	1452.5	75.1
0°-90°	1904.9	98.5
90°-120°	29.1	1.5
90°-150°	29.1	1.5
90°-180°	29.0	1.5
0°-180°	1934.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	640	640	640	640	640	
5°	638	637	634	637	637	61
15°	614	615	613	617	617	173
25°	569	569	570	575	576	262
35°	504	506	508	513	515	315
45°	424	428	431	435	437	326
55°	331	335	341	346	348	295
65°	227	231	239	249	253	225
75°	115	122	140	157	163	123
85°	20	37	63	84	91	25
90°	0	14	37	56	63	1
95°	0	4	19	35	40	0
105°	0	0	3	9	12	0
115°	0	0	1	2	2	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	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°	639.7	639.7	639.7	639.7	639.7
2.5°	640.4	639.5	636.6	639.5	639.3
5°	638.3	637.1	634.2	637.2	637.2
7.5°	634.1	633.6	631.1	634.5	634.5
10°	629.1	628.9	626.8	630.6	630.8
12.5°	622.2	622.8	620.8	624.4	624.9
15°	614.0	615.1	613.4	616.9	616.7
17.5°	605.1	605.7	604.5	608.4	608.3
20°	594.1	594.9	594.0	598.0	598.5
22.5°	581.9	583.0	582.8	587.0	588.2
25°	568.9	569.4	570.0	574.8	575.7
27.5°	554.6	555.4	556.4	560.8	561.7
30°	538.9	540.1	541.3	545.9	547.1
32.5°	522.3	523.5	525.1	530.9	531.5
35°	503.6	505.9	508.0	513.1	515.2
37.5°	484.9	487.8	489.8	495.2	496.9
40°	465.2	468.1	471.2	476.9	478.0
42.5°	444.5	447.8	451.6	456.7	458.6
45°	423.7	427.5	431.0	435.2	437.3
47.5°	401.3	405.0	409.2	414.1	415.4
50°	378.0	382.4	386.9	391.5	393.9
52.5°	354.2	359.5	364.6	369.4	371.7
55°	330.7	334.6	340.8	345.8	348.0
57.5°	306.3	309.6	315.2	323.3	324.5
60°	281.4	284.4	290.1	296.8	299.5
62.5°	253.9	258.0	264.0	272.5	274.9
65°	227.2	231.2	239.2	248.7	252.6
67.5°	201.5	202.8	213.1	223.0	229.4
70°	171.0	176.1	188.0	200.2	205.1
72.5°	144.8	149.9	163.0	177.3	183.4
75°	115.1	122.1	139.9	156.7	162.6
77.5°	89.0	96.8	118.8	135.7	142.5
80°	62.1	74.3	98.3	117.3	124.7
82.5°	39.1	54.1	79.8	99.7	106.2
85°	19.9	36.8	63.2	83.5	90.9
87.5°	5.3	23.8	49.2	68.6	76.1
90°	0.2	13.7	37.2	55.9	62.7
92.5°	0.2	7.7	27.7	44.5	51.4
95°	0.2	3.6	19.3	35.0	40.4
97.5°	0.2	1.5	13.3	26.4	31.8
100°	0.2	0.8	8.4	19.2	23.8
102.5°	0.3	0.5	5.3	13.7	17.5
105°	0.3	0.5	3.2	9.3	12.5
107.5°	0.3	0.5	1.8	6.3	8.6
110°	0.5	0.5	1.1	3.9	5.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	0.5	0.6	2.6	3.8
115°	0.5	0.5	0.6	1.7	2.4
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
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)