

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: P517779

Luminaire Tested: HVL8-1-LD4-2HI-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: P517779
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-2HI-40-UNV-C-EDD-90
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1906.0 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 1' x H: 0.17')
CIE Type: Direct

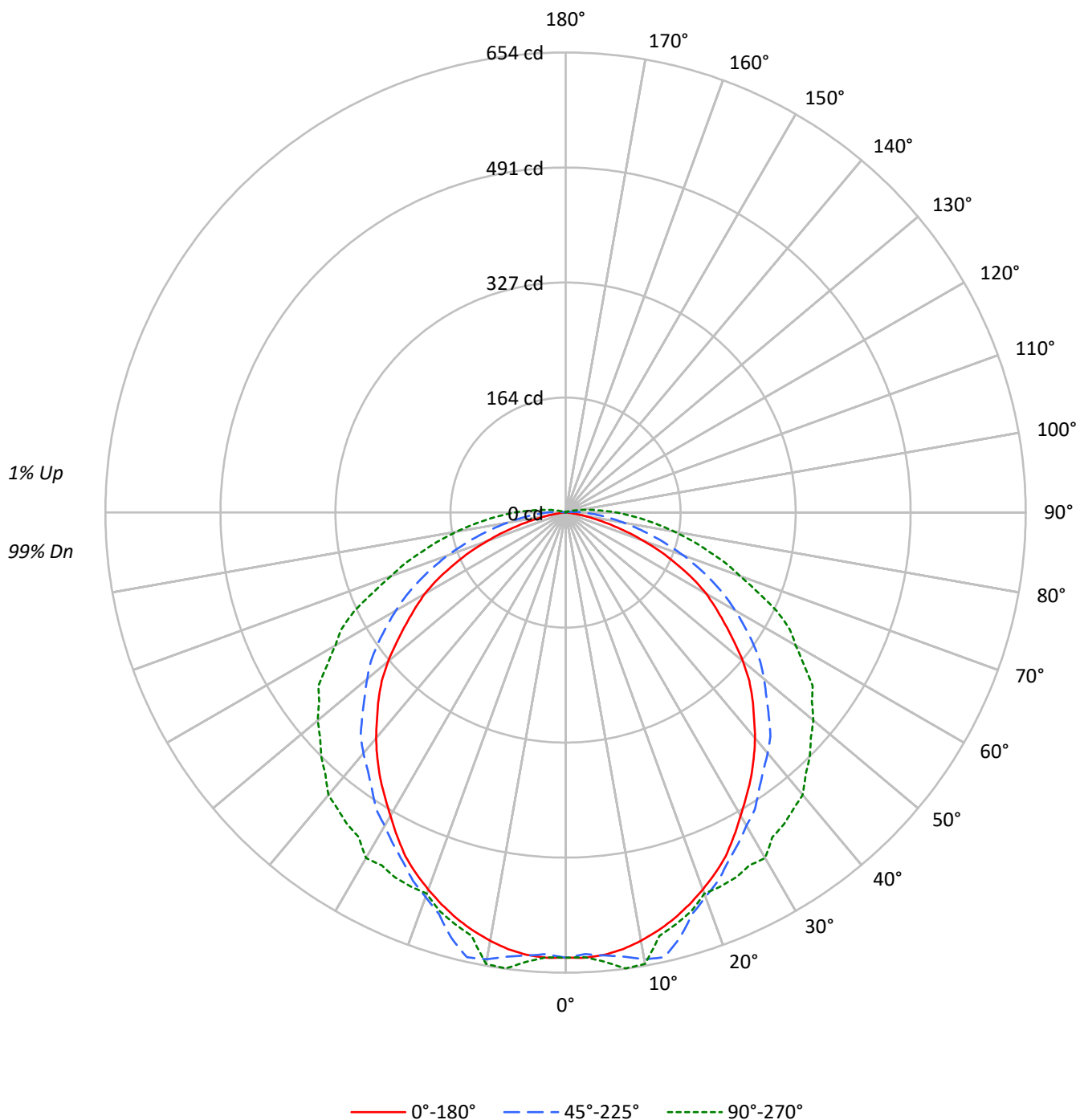
Input Watts (W): 21.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	10215	10215	10215
5°	10082	9986	10165
10°	9843	10048	10229
15°	9559	9704	9493
20°	9238	9024	9079
25°	8908	8569	9136
30°	8463	8193	9237
35°	8114	7836	9073
40°	7746	7550	9129
45°	7353	7203	8965
50°	6899	6841	8896
55°	6291	6455	8892
60°	5781	5954	8513
65°	4931	5373	8242
70°	3830	4649	7390
75°	2546	3803	6744
80°	1276	2962	6056
85°	376	2116	5335

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8965 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.8	3.2
10°-20°	173.2	9.1
20°-30°	257.7	13.5
30°-40°	309.7	16.2
40°-50°	326.0	17.1
50°-60°	302.5	15.9
60°-70°	239.2	12.5
70°-80°	146.1	7.7
80°-90°	63.6	3.3
90°-100°	19.8	1.0
100°-110°	4.5	0.2
110°-120°	1.8	0.1
120°-130°	1.0	0.1
130°-140°	0.3	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°	491.6	25.8
0°-40°	801.3	42.0
0°-60°	1429.8	75.0
0°-90°	1878.7	98.6
90°-120°	26.1	1.4
90°-150°	27.4	1.4
90°-180°	27.0	1.4
0°-180°	1906.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	633	633	633	633	633	
5°	631	630	632	639	641	60
15°	597	620	626	606	606	168
25°	539	573	547	564	573	247
35°	460	472	480	523	541	287
45°	376	377	408	473	491	290
55°	277	281	326	397	429	249
65°	175	181	230	304	331	173
75°	66	88	128	197	209	72
85°	6	21	50	97	111	9
90°	0	6	26	61	72	0
95°	0	2	12	34	41	0
105°	0	1	2	7	9	0
115°	0	0	2	3	3	0
125°	0	0	1	2	3	0
135°	0	0	0	1	1	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°	632.7	632.7	632.7	632.7	632.7
2.5°	633.5	631.8	628.3	631.7	632.6
5°	631.1	629.9	632.0	639.1	640.9
7.5°	625.9	630.8	636.6	649.4	653.6
10°	618.0	627.3	644.7	655.6	651.4
12.5°	608.5	624.2	647.5	626.1	616.2
15°	597.4	620.3	626.4	605.6	606.0
17.5°	584.4	617.1	598.4	597.9	594.2
20°	570.3	606.3	581.5	580.5	576.5
22.5°	555.2	592.0	566.6	564.5	575.3
25°	538.9	573.3	547.1	563.5	572.6
27.5°	518.4	548.8	530.9	554.1	565.5
30°	497.6	523.5	514.2	546.6	567.0
32.5°	478.2	497.1	500.6	543.8	547.1
35°	459.7	472.5	479.6	523.1	540.9
37.5°	439.5	443.0	461.8	514.5	531.6
40°	418.9	416.7	446.8	500.3	524.0
42.5°	396.7	395.9	431.0	493.2	505.1
45°	375.7	377.4	408.4	473.1	490.8
47.5°	354.2	356.4	387.0	451.1	473.0
50°	329.2	332.0	368.0	431.5	459.7
52.5°	302.1	307.5	349.4	412.9	441.4
55°	276.7	281.2	325.8	397.1	428.7
57.5°	253.5	256.2	301.5	377.1	401.0
60°	230.7	231.3	278.5	354.9	377.8
62.5°	204.5	205.7	254.9	328.8	359.3
65°	175.2	180.7	229.5	303.8	331.4
67.5°	147.7	157.4	203.6	280.8	295.3
70°	118.3	134.7	178.2	253.9	264.1
72.5°	91.4	110.6	152.2	223.7	238.0
75°	66.2	87.8	128.0	196.7	209.0
77.5°	44.6	66.5	105.3	166.8	183.1
80°	26.7	48.6	85.1	139.1	157.5
82.5°	13.7	32.6	66.0	116.6	133.1
85°	5.9	20.6	49.9	96.8	111.1
87.5°	1.7	11.7	36.7	78.2	90.3
90°	0.1	6.2	26.2	61.3	72.3
92.5°	0.1	3.0	18.4	46.4	54.8
95°	0.1	1.5	11.5	33.6	41.1
97.5°	0.1	0.9	7.0	23.8	30.2
100°	0.1	0.8	4.1	15.9	21.5
102.5°	0.1	0.9	2.8	10.1	14.0
105°	0.1	0.9	2.3	6.6	9.3
107.5°	0.3	0.9	2.1	4.9	6.4
110°	0.1	0.8	2.2	3.7	5.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.6	2.1	3.1	3.7
115°	0.1	0.5	1.8	3.0	3.1
117.5°	0.3	0.4	1.4	3.0	3.1
120°	0.3	0.3	1.2	2.8	3.2
122.5°	0.3	0.3	0.9	2.6	3.1
125°	0.1	0.3	0.8	1.9	2.7
127.5°	0.3	0.3	0.6	1.5	2.1
130°	0.3	0.3	0.5	1.2	1.5
132.5°	0.3	0.3	0.4	0.9	1.2
135°	0.3	0.3	0.3	0.6	0.9
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)