

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: P517771

Luminaire Tested: HVL8-1-LD4-2HI-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: P517771
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-2HI-30-UNV-C-EDD-90
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1854.1 lumens
Efficiency: N/A
Efficacy: 86.2 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

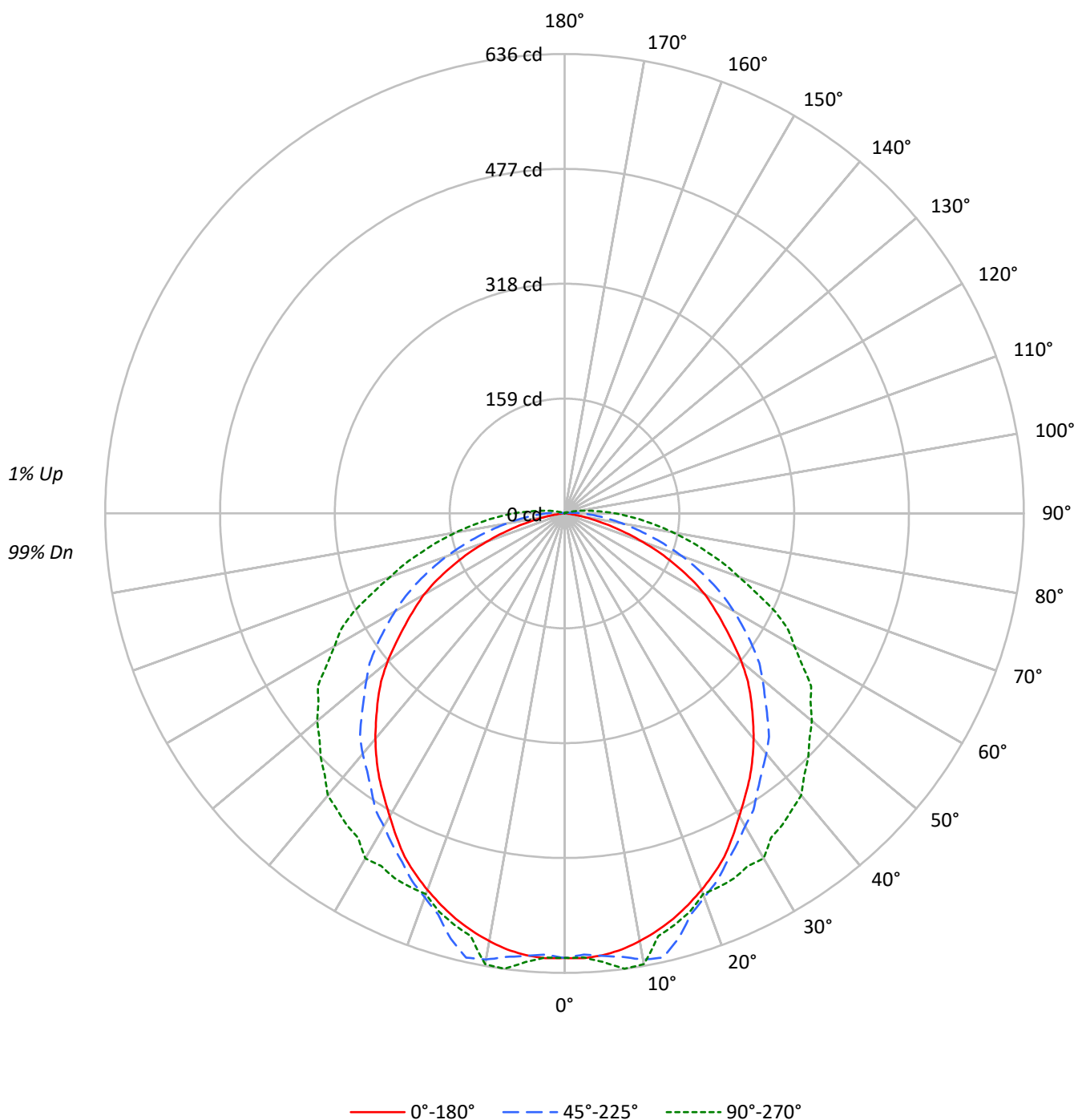
Input Watts (W): 21.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
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	44	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°	9936	9936	9936
5°	9807	9714	9889
10°	9574	9773	9949
15°	9298	9439	9235
20°	8986	8778	8832
25°	8665	8336	8887
30°	8231	7970	8985
35°	7893	7622	8826
40°	7533	7344	8880
45°	7151	7007	8720
50°	6710	6653	8654
55°	6121	6278	8650
60°	5623	5792	8281
65°	4796	5227	8015
70°	3727	4523	7189
75°	2477	3699	6560
80°	1243	2879	5891
85°	370	2057	5191

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8720 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.1	3.2
10°-20°	168.4	9.1
20°-30°	250.6	13.5
30°-40°	301.2	16.2
40°-50°	317.1	17.1
50°-60°	294.2	15.9
60°-70°	232.6	12.5
70°-80°	142.1	7.7
80°-90°	61.9	3.3
90°-100°	19.3	1.0
100°-110°	4.3	0.2
110°-120°	1.7	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°	478.2	25.8
0°-40°	779.5	42.0
0°-60°	1390.8	75.0
0°-90°	1827.4	98.6
90°-120°	25.4	1.4
90°-150°	26.6	1.4
90°-180°	27.0	1.5
0°-180°	1854.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	615	615	615	615	615	
5°	614	613	615	622	624	58
15°	581	603	609	589	590	164
25°	524	558	532	548	557	241
35°	447	460	466	509	526	279
45°	365	367	397	460	477	282
55°	269	274	317	386	417	242
65°	170	176	223	296	322	169
75°	64	85	124	191	203	70
85°	6	20	48	94	108	9
90°	0	6	25	60	70	0
95°	0	2	11	33	40	0
105°	0	1	2	6	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°	615.4	615.4	615.4	615.4	615.4
2.5°	616.2	614.5	611.2	614.4	615.3
5°	613.9	612.7	614.8	621.7	623.5
7.5°	608.8	613.5	619.2	631.7	635.7
10°	601.1	610.2	627.1	637.7	633.6
12.5°	591.9	607.2	629.8	609.0	599.4
15°	581.1	603.4	609.3	589.1	589.5
17.5°	568.4	600.3	582.1	581.6	577.9
20°	554.7	589.7	565.7	564.7	560.8
22.5°	540.1	575.8	551.1	549.1	559.6
25°	524.2	557.6	532.2	548.1	557.0
27.5°	504.2	533.8	516.4	539.0	550.1
30°	484.0	509.2	500.2	531.7	551.5
32.5°	465.1	483.5	486.9	528.9	532.2
35°	447.2	459.6	466.5	508.9	526.2
37.5°	427.5	430.9	449.2	500.5	517.1
40°	407.4	405.3	434.6	486.7	509.7
42.5°	385.9	385.1	419.2	479.8	491.3
45°	365.4	367.1	397.3	460.2	477.4
47.5°	344.5	346.6	376.5	438.8	460.1
50°	320.2	322.9	357.9	419.7	447.2
52.5°	293.9	299.1	339.9	401.7	429.4
55°	269.2	273.6	316.9	386.3	417.0
57.5°	246.6	249.2	293.2	366.8	390.0
60°	224.4	225.0	270.9	345.3	367.5
62.5°	199.0	200.1	248.0	319.8	349.5
65°	170.4	175.8	223.3	295.5	322.3
67.5°	143.7	153.1	198.1	273.2	287.2
70°	115.1	131.0	173.4	247.0	256.9
72.5°	88.9	107.6	148.1	217.6	231.6
75°	64.4	85.4	124.5	191.3	203.3
77.5°	43.4	64.7	102.4	162.2	178.1
80°	26.0	47.3	82.7	135.3	153.2
82.5°	13.3	31.7	64.2	113.5	129.5
85°	5.8	20.1	48.5	94.2	108.1
87.5°	1.6	11.4	35.7	76.1	87.9
90°	0.1	6.0	25.4	59.7	70.3
92.5°	0.1	2.9	17.9	45.1	53.3
95°	0.1	1.5	11.2	32.7	40.0
97.5°	0.1	0.9	6.8	23.2	29.3
100°	0.1	0.8	4.0	15.4	20.9
102.5°	0.1	0.9	2.8	9.8	13.7
105°	0.1	0.9	2.3	6.4	9.0
107.5°	0.3	0.9	2.0	4.8	6.3
110°	0.1	0.8	2.1	3.6	4.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.6	2.0	3.0	3.6
115°	0.1	0.5	1.8	2.9	3.0
117.5°	0.3	0.4	1.4	2.9	3.0
120°	0.3	0.3	1.1	2.8	3.1
122.5°	0.3	0.3	0.9	2.5	3.0
125°	0.1	0.3	0.8	1.9	2.6
127.5°	0.3	0.3	0.6	1.5	2.0
130°	0.3	0.3	0.5	1.1	1.5
132.5°	0.3	0.3	0.4	0.9	1.1
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)