

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: P518027

Luminaire Tested: HVL8-4-LD4-1LO-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: P518027
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1LO-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: 2718.0 lumens
Efficiency: N/A
Efficacy: 118.2 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

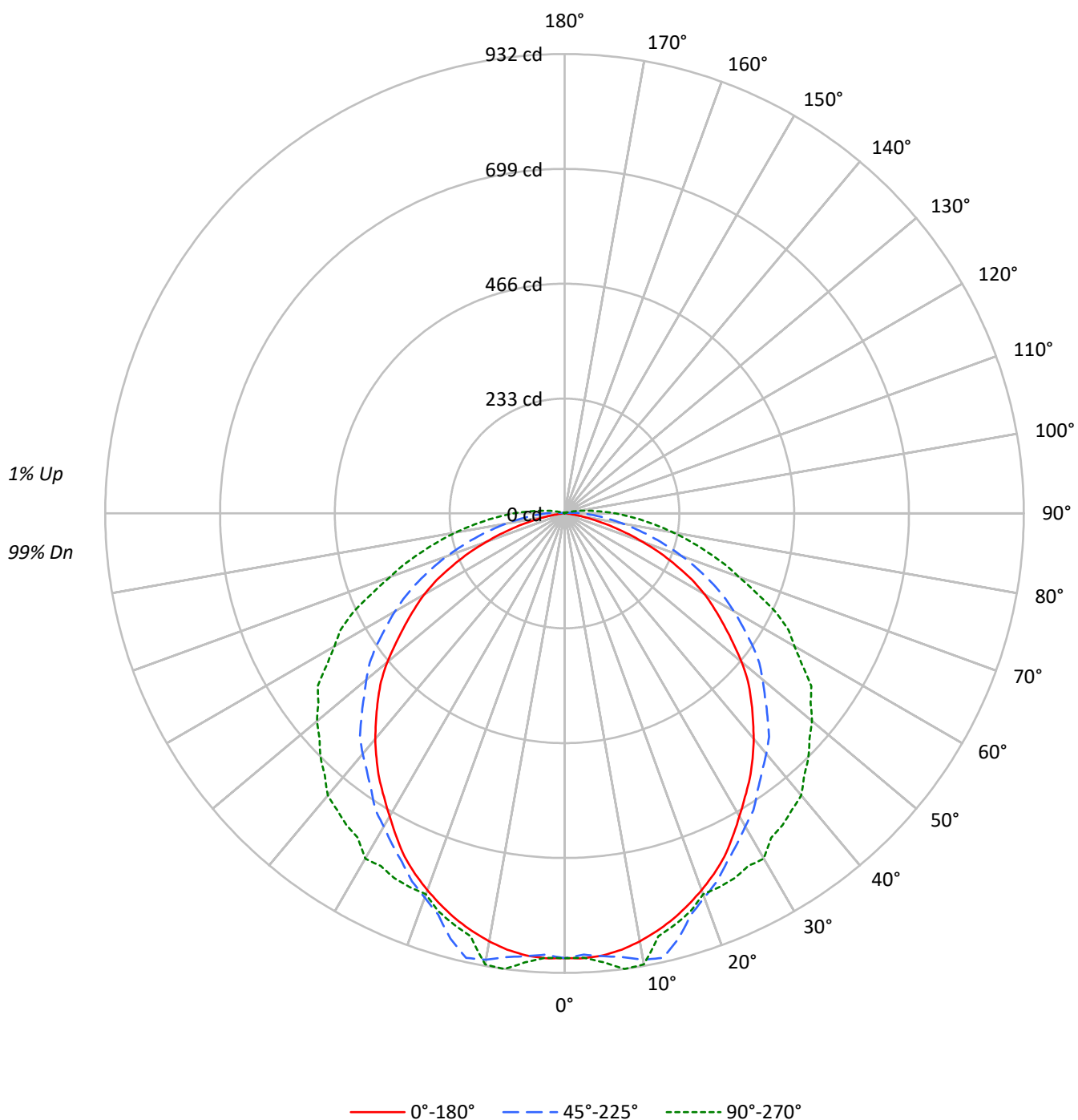
Input Watts (W): 23
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	45	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°	3642	3642	3642
5°	3633	3587	3624
10°	3586	3636	3647
15°	3521	3537	3385
20°	3441	3313	3237
25°	3357	3170	3257
30°	3230	3054	3293
35°	3139	2945	3235
40°	3041	2862	3255
45°	2936	2756	3196
50°	2808	2645	3172
55°	2621	2526	3170
60°	2477	2362	3035
65°	2190	2167	2938
70°	1786	1915	2635
75°	1275	1608	2405
80°	714	1299	2159
85°	267	981	1901

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 3196 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.7	3.2
10°-20°	246.9	9.1
20°-30°	367.4	13.5
30°-40°	441.6	16.2
40°-50°	464.8	17.1
50°-60°	431.3	15.9
60°-70°	341.0	12.5
70°-80°	208.3	7.7
80°-90°	90.8	3.3
90°-100°	28.3	1.0
100°-110°	6.3	0.2
110°-120°	2.5	0.1
120°-130°	1.4	0.1
130°-140°	0.4	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°	701.1	25.8
0°-40°	1142.7	42.0
0°-60°	2038.9	75.0
0°-90°	2679.0	98.6
90°-120°	37.2	1.4
90°-150°	39.0	1.4
90°-180°	39.0	1.4
0°-180°	2718.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	902	902	902	902	902	
5°	900	898	901	911	914	85
15°	852	885	893	864	864	240
25°	768	818	780	804	817	353
35°	656	674	684	746	771	410
45°	536	538	582	675	700	413
55°	395	401	465	566	611	355
65°	250	258	327	433	472	247
75°	94	125	182	280	298	103
85°	8	29	71	138	158	13
90°	0	9	37	88	103	0
95°	0	2	16	48	59	0
105°	0	1	3	9	13	0
115°	0	1	3	4	4	0
125°	0	0	1	3	4	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°	902.2	902.2	902.2	902.2	902.2
2.5°	903.3	900.9	896.0	900.8	902.0
5°	900.0	898.2	901.3	911.4	914.0
7.5°	892.5	899.5	907.7	926.1	932.0
10°	881.3	894.5	919.3	934.9	928.9
12.5°	867.7	890.1	923.4	892.9	878.7
15°	851.9	884.6	893.2	863.6	864.2
17.5°	833.3	880.0	853.3	852.6	847.3
20°	813.3	864.6	829.3	827.8	822.1
22.5°	791.8	844.2	807.9	805.0	820.4
25°	768.4	817.5	780.2	803.5	816.6
27.5°	739.2	782.6	757.0	790.1	806.5
30°	709.6	746.6	733.3	779.5	808.5
32.5°	681.9	708.9	713.8	775.4	780.2
35°	655.6	673.8	683.9	746.0	771.4
37.5°	626.7	631.7	658.5	733.7	758.1
40°	597.3	594.2	637.2	713.5	747.3
42.5°	565.7	564.6	614.6	703.4	720.3
45°	535.7	538.1	582.4	674.7	699.9
47.5°	505.1	508.2	551.9	643.3	674.5
50°	469.4	473.4	524.7	615.3	655.6
52.5°	430.8	438.5	498.3	588.9	629.5
55°	394.6	401.0	464.6	566.3	611.3
57.5°	361.5	365.4	429.9	537.8	571.8
60°	329.0	329.9	397.2	506.2	538.7
62.5°	291.7	293.3	363.5	468.8	512.4
65°	249.8	257.7	327.3	433.2	472.5
67.5°	210.6	224.4	290.4	400.5	421.1
70°	168.7	192.1	254.2	362.1	376.6
72.5°	130.3	157.7	217.1	319.1	339.5
75°	94.5	125.2	182.5	280.5	298.1
77.5°	63.6	94.8	150.2	237.8	261.2
80°	38.0	69.3	121.3	198.3	224.6
82.5°	19.5	46.5	94.1	166.3	189.9
85°	8.5	29.4	71.1	138.0	158.4
87.5°	2.4	16.7	52.4	111.6	128.8
90°	0.2	8.8	37.3	87.5	103.1
92.5°	0.2	4.2	26.3	66.2	78.1
95°	0.2	2.2	16.4	48.0	58.6
97.5°	0.2	1.3	9.9	34.0	43.0
100°	0.2	1.1	5.9	22.6	30.7
102.5°	0.2	1.3	4.0	14.3	20.0
105°	0.2	1.3	3.3	9.4	13.2
107.5°	0.4	1.3	2.9	7.0	9.2
110°	0.2	1.1	3.1	5.3	7.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	0.9	2.9	4.4	5.3
115°	0.2	0.7	2.6	4.2	4.4
117.5°	0.4	0.6	2.0	4.2	4.4
120°	0.4	0.4	1.7	4.0	4.6
122.5°	0.4	0.4	1.3	3.7	4.4
125°	0.2	0.4	1.1	2.8	3.9
127.5°	0.4	0.4	0.9	2.2	2.9
130°	0.4	0.4	0.7	1.7	2.2
132.5°	0.4	0.4	0.6	1.3	1.7
135°	0.4	0.4	0.4	0.9	1.3
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)