

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: P518031

Luminaire Tested: HVL8-4-LD4-1LO-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: P518031
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1LO-35-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2853.0 lumens
Efficiency: N/A
Efficacy: 124.0 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

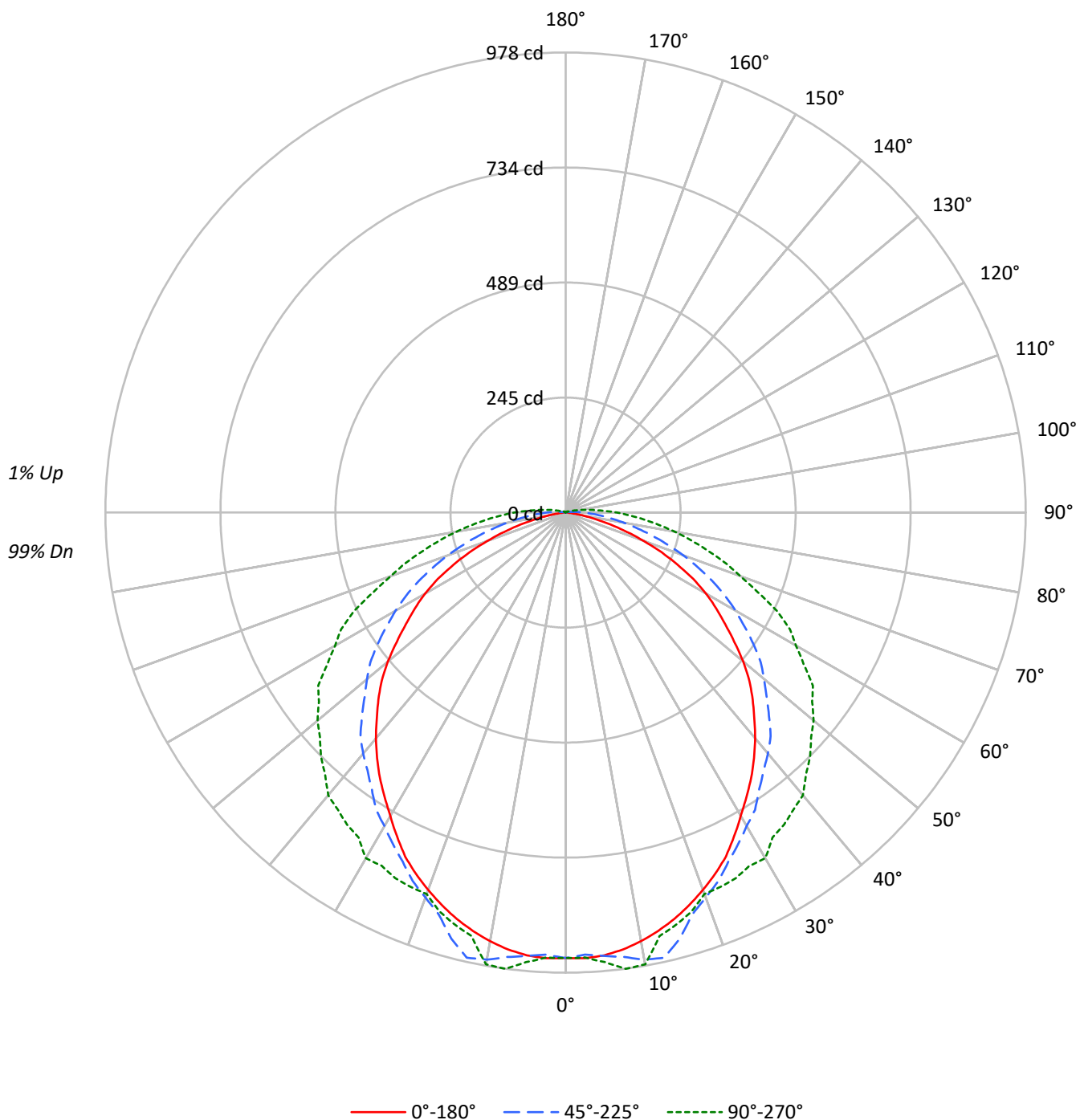
Input Watts (W): 23
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	3823	3823	3823
5°	3814	3766	3804
10°	3764	3816	3828
15°	3695	3713	3553
20°	3612	3478	3397
25°	3524	3327	3419
30°	3390	3206	3457
35°	3295	3091	3395
40°	3192	3005	3416
45°	3082	2893	3355
50°	2948	2776	3329
55°	2751	2651	3327
60°	2600	2480	3185
65°	2299	2275	3084
70°	1875	2010	2765
75°	1339	1688	2524
80°	750	1364	2266
85°	279	1030	1996

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 3355 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	91.0	3.2
10°-20°	259.2	9.1
20°-30°	385.7	13.5
30°-40°	463.6	16.2
40°-50°	487.9	17.1
50°-60°	452.7	15.9
60°-70°	358.0	12.5
70°-80°	218.7	7.7
80°-90°	95.3	3.3
90°-100°	29.7	1.0
100°-110°	6.7	0.2
110°-120°	2.7	0.1
120°-130°	1.5	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°	735.9	25.8
0°-40°	1199.5	42.0
0°-60°	2140.2	75.0
0°-90°	2812.1	98.6
90°-120°	39.0	1.4
90°-150°	40.9	1.4
90°-180°	41.0	1.4
0°-180°	2853.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	947	947	947	947	947	
5°	945	943	946	957	959	90
15°	894	928	938	906	907	252
25°	807	858	819	843	857	370
35°	688	707	718	783	810	430
45°	562	565	611	708	735	433
55°	414	421	488	594	642	372
65°	262	270	344	455	496	260
75°	99	131	192	294	313	108
85°	9	31	75	145	166	14
90°	0	9	39	92	108	0
95°	0	2	17	50	62	0
105°	0	1	4	10	14	0
115°	0	1	3	4	5	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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CATALOG NUMBER: HVL8-4-LD4-1LO-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	947.0	947.0	947.0	947.0	947.0
2.5°	948.2	945.7	940.5	945.5	946.8
5°	944.7	942.8	946.1	956.7	959.4
7.5°	936.8	944.1	952.8	972.1	978.3
10°	925.0	938.9	965.0	981.4	975.0
12.5°	910.8	934.3	969.2	937.2	922.3
15°	894.2	928.5	937.6	906.5	907.1
17.5°	874.7	923.7	895.7	895.0	889.4
20°	853.7	907.5	870.5	868.9	862.9
22.5°	831.1	886.1	848.1	845.0	861.2
25°	806.6	858.1	818.9	843.4	857.1
27.5°	775.9	821.5	794.6	829.4	846.5
30°	744.9	783.6	769.7	818.2	848.7
32.5°	715.7	744.1	749.3	813.9	818.9
35°	688.1	707.2	717.9	783.1	809.7
37.5°	657.9	663.1	691.2	770.1	795.8
40°	627.0	623.7	668.9	748.9	784.4
42.5°	593.8	592.6	645.1	738.3	756.1
45°	562.4	564.9	611.4	708.2	734.6
47.5°	530.1	533.4	579.3	675.2	708.0
50°	492.7	497.0	550.8	645.9	688.1
52.5°	452.2	460.3	523.0	618.1	660.7
55°	414.2	420.9	487.7	594.4	641.6
57.5°	379.5	383.5	451.2	564.5	600.2
60°	345.3	346.3	416.9	531.3	565.4
62.5°	306.2	307.9	381.6	492.1	537.9
65°	262.2	270.5	343.6	454.7	496.0
67.5°	221.1	235.6	304.8	420.4	442.0
70°	177.1	201.6	266.8	380.1	395.3
72.5°	136.8	165.5	227.8	334.9	356.3
75°	99.2	131.4	191.6	294.4	312.9
77.5°	66.8	99.5	157.6	249.6	274.1
80°	39.9	72.7	127.3	208.2	235.7
82.5°	20.4	48.8	98.8	174.6	199.3
85°	8.9	30.9	74.7	144.9	166.3
87.5°	2.5	17.6	55.0	117.1	135.2
90°	0.2	9.3	39.2	91.8	108.2
92.5°	0.2	4.4	27.6	69.5	82.0
95°	0.2	2.3	17.2	50.4	61.5
97.5°	0.2	1.4	10.4	35.7	45.1
100°	0.2	1.2	6.2	23.7	32.2
102.5°	0.2	1.4	4.2	15.0	21.0
105°	0.2	1.4	3.5	9.8	13.9
107.5°	0.4	1.4	3.1	7.3	9.6
110°	0.2	1.2	3.3	5.6	7.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.1	4.6	5.6
115°	0.2	0.8	2.7	4.4	4.6
117.5°	0.4	0.6	2.1	4.4	4.6
120°	0.4	0.4	1.7	4.2	4.8
122.5°	0.4	0.4	1.4	3.9	4.6
125°	0.2	0.4	1.2	2.9	4.1
127.5°	0.4	0.4	1.0	2.3	3.1
130°	0.4	0.4	0.8	1.7	2.3
132.5°	0.4	0.4	0.6	1.4	1.7
135°	0.4	0.4	0.4	1.0	1.4
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)