

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: P518111

Luminaire Tested: HVL8-4-LD4-3HI-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: P518111
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3HI-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: 14165.0 lumens
Efficiency: N/A
Efficacy: 112.5 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

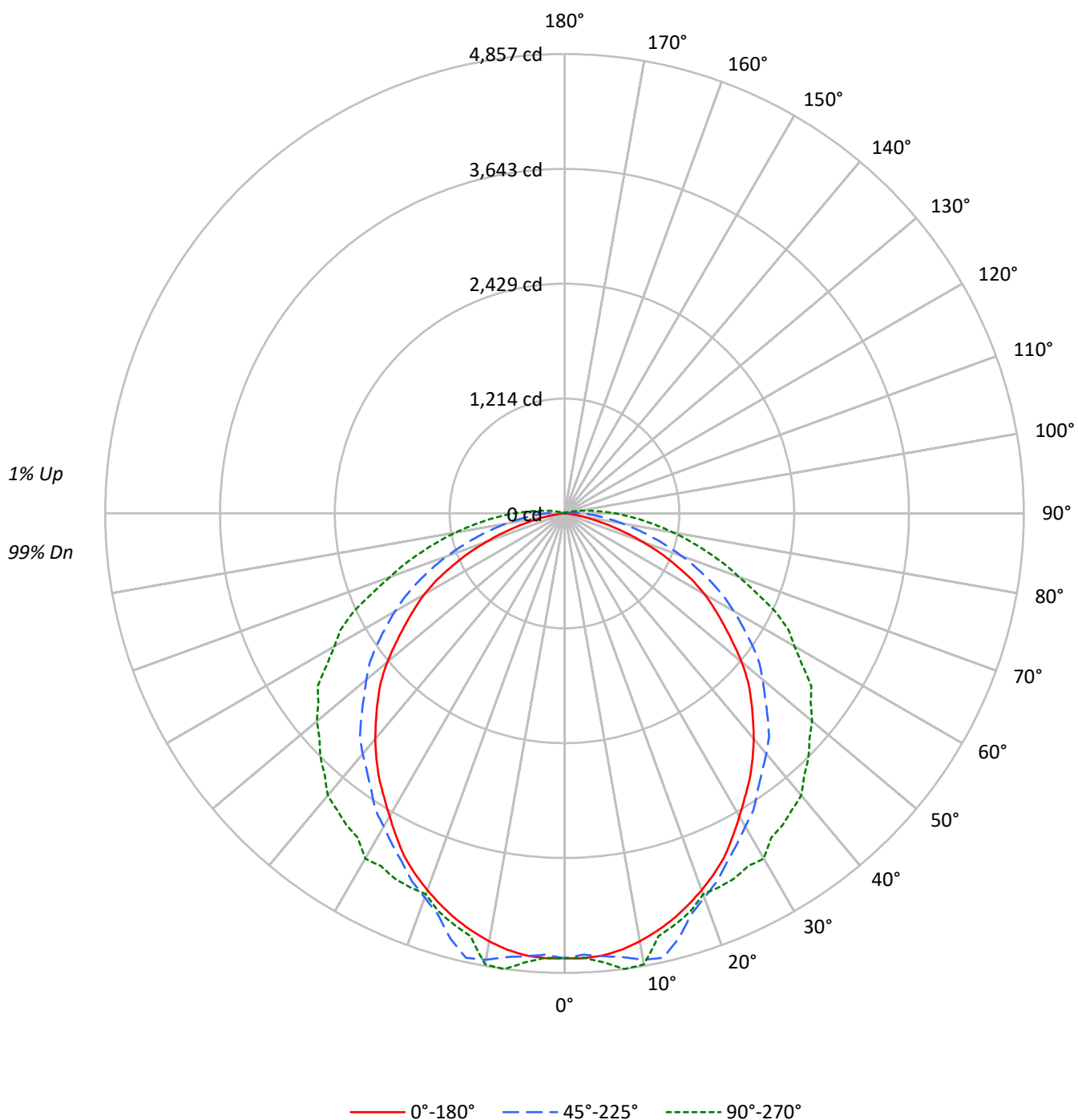
Input Watts (W): 125.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		99
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		81
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		47
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		41
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	18979	18979	18979
5°	18936	18695	18887
10°	18687	18948	19004
15°	18348	18434	17639
20°	17934	17268	16869
25°	17496	16520	16975
30°	16832	15917	17161
35°	16358	15346	16857
40°	15849	14916	16963
45°	15301	14364	16656
50°	14635	13784	16529
55°	13659	13163	16520
60°	12909	12311	15815
65°	11413	11296	15311
70°	9311	9979	13730
75°	6644	8381	12533
80°	3728	6773	11252
85°	1383	5113	9912

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 16656 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	451.9	3.2
10°-20°	1286.9	9.1
20°-30°	1914.8	13.5
30°-40°	2301.6	16.2
40°-50°	2422.6	17.1
50°-60°	2247.9	15.9
60°-70°	1777.4	12.5
70°-80°	1085.7	7.7
80°-90°	473.0	3.3
90°-100°	147.3	1.0
100°-110°	33.1	0.2
110°-120°	13.3	0.1
120°-130°	7.5	0.1
130°-140°	2.0	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°	3653.7	25.8
0°-40°	5955.3	42.0
0°-60°	10625.8	75.0
0°-90°	13961.9	98.6
90°-120°	193.6	1.4
90°-150°	203.1	1.4
90°-180°	203.0	1.4
0°-180°	14165.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4702	4702	4702	4702	4702	
5°	4690	4681	4697	4750	4763	445
15°	4440	4610	4655	4501	4504	1251
25°	4005	4260	4066	4188	4256	1839
35°	3417	3511	3564	3888	4020	2135
45°	2792	2804	3035	3516	3647	2152
55°	2056	2090	2421	2951	3186	1848
65°	1302	1343	1706	2258	2463	1289
75°	492	652	951	1462	1554	537
85°	44	153	371	719	826	68
90°	1	46	194	456	537	2
95°	1	12	85	250	306	1
105°	1	7	17	49	69	1
115°	1	4	13	22	23	2
125°	1	2	6	14	20	2
135°	2	2	2	5	7	1
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°	4702.0	4702.0	4702.0	4702.0	4702.0
2.5°	4707.8	4695.3	4669.4	4694.3	4701.1
5°	4690.5	4680.9	4697.2	4749.9	4763.3
7.5°	4651.2	4687.6	4730.7	4826.5	4857.2
10°	4592.8	4661.8	4791.1	4872.5	4840.9
12.5°	4521.9	4638.8	4812.2	4653.2	4579.4
15°	4439.6	4610.1	4655.1	4500.9	4503.7
17.5°	4342.8	4586.1	4447.2	4443.4	4415.6
20°	4238.4	4505.7	4321.7	4314.1	4284.4
22.5°	4126.4	4399.3	4210.6	4195.3	4275.8
25°	4004.7	4260.4	4066.0	4187.7	4255.7
27.5°	3852.4	4078.5	3945.3	4117.7	4203.0
30°	3698.2	3890.7	3821.8	4062.2	4213.5
32.5°	3553.6	3694.4	3720.2	4041.1	4066.0
35°	3416.6	3511.4	3564.1	3887.9	4020.0
37.5°	3266.2	3292.1	3431.9	3823.7	3951.1
40°	3113.0	3096.7	3320.8	3718.3	3894.6
42.5°	2948.2	2942.5	3203.0	3665.6	3753.8
45°	2792.1	2804.5	3035.4	3516.2	3647.4
47.5°	2632.1	2648.4	2876.4	3352.4	3515.3
50°	2446.3	2467.4	2734.6	3206.8	3416.6
52.5°	2245.2	2285.4	2596.7	3068.9	3280.6
55°	2056.5	2090.0	2421.4	2951.1	3185.8
57.5°	1884.1	1904.2	2240.4	2802.6	2979.8
60°	1714.5	1719.3	2069.9	2637.9	2807.4
62.5°	1520.1	1528.7	1894.6	2443.4	2670.4
65°	1301.7	1342.9	1705.9	2257.6	2462.6
67.5°	1097.7	1169.5	1513.4	2087.1	2194.4
70°	879.3	1000.9	1324.7	1886.9	1962.6
72.5°	679.1	821.8	1131.2	1662.8	1769.1
75°	492.3	652.3	951.1	1461.7	1553.6
77.5°	331.4	494.2	782.6	1239.4	1361.1
80°	198.3	361.1	632.2	1033.5	1170.5
82.5°	101.5	242.3	490.4	866.8	989.4
85°	44.1	153.3	370.7	719.3	825.7
87.5°	12.5	87.2	273.0	581.4	671.4
90°	1.0	46.0	194.4	455.9	537.3
92.5°	1.0	22.0	137.0	344.8	407.1
95°	1.0	11.5	85.2	250.0	305.5
97.5°	1.0	6.7	51.7	177.2	224.1
100°	1.0	5.7	30.7	117.8	160.0
102.5°	1.0	6.7	21.1	74.7	104.4
105°	1.0	6.7	17.2	48.8	69.0
107.5°	1.9	6.7	15.3	36.4	47.9
110°	1.0	5.7	16.3	27.8	37.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.9	4.8	15.3	23.0	27.8
115°	1.0	3.8	13.4	22.0	23.0
117.5°	1.9	2.9	10.5	22.0	23.0
120°	1.9	1.9	8.6	21.1	23.9
122.5°	1.9	1.9	6.7	19.2	23.0
125°	1.0	1.9	5.7	14.4	20.1
127.5°	1.9	1.9	4.8	11.5	15.3
130°	1.9	1.9	3.8	8.6	11.5
132.5°	1.9	1.9	2.9	6.7	8.6
135°	1.9	1.9	1.9	4.8	6.7
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)