

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: P517939

Luminaire Tested: HVL8-2-LD4-2LO-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: P517939
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-2LO-40-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2299.0 lumens
Efficiency: N/A
Efficacy: 99.5 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

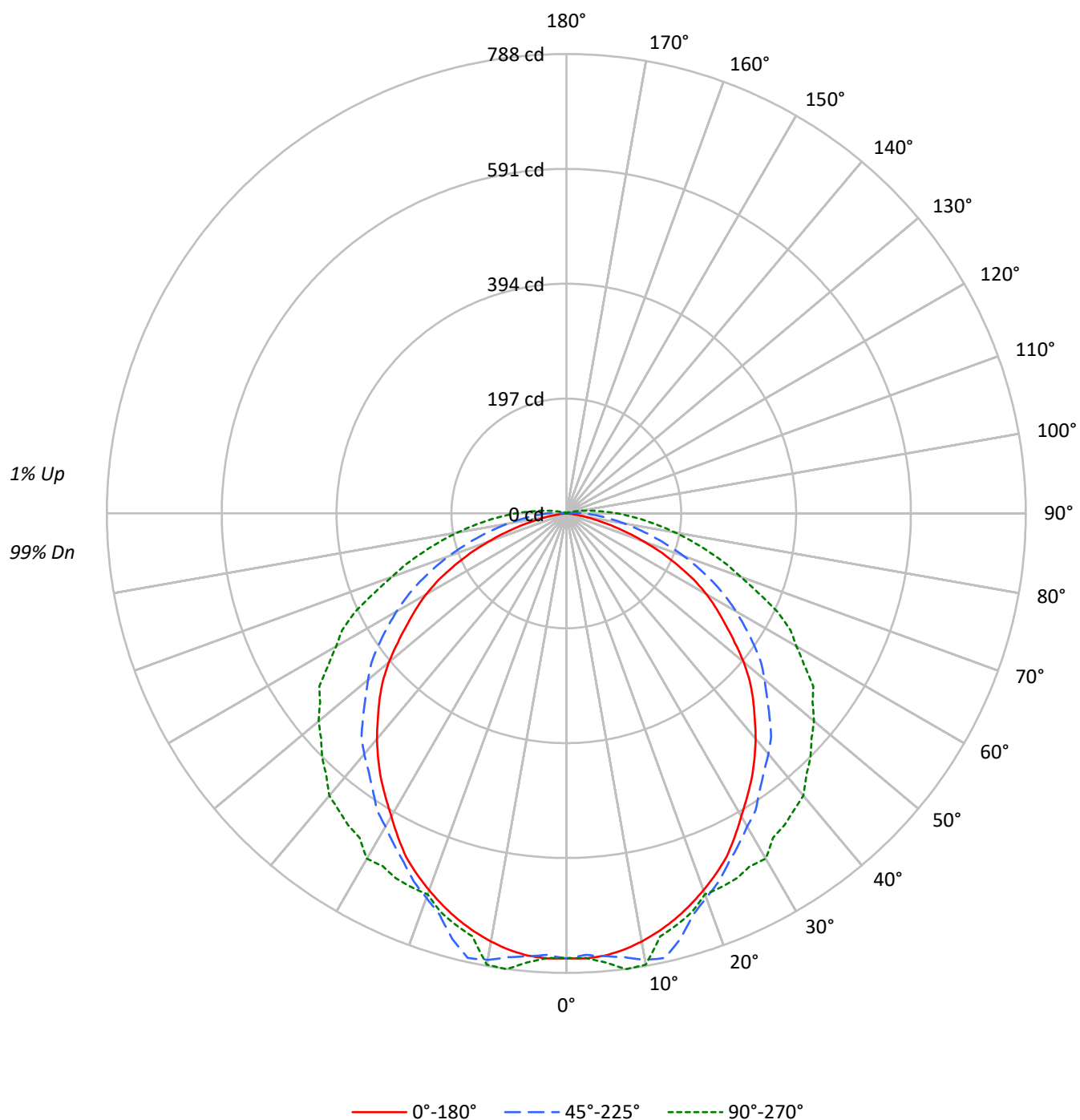
Input Watts (W): 23.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6160	6160	6160
5°	6125	6053	6131
10°	6022	6120	6169
15°	5890	5939	5726
20°	5736	5550	5476
25°	5573	5296	5510
30°	5338	5090	5571
35°	5163	4893	5472
40°	4976	4742	5506
45°	4776	4551	5407
50°	4536	4351	5365
55°	4198	4138	5363
60°	3927	3851	5133
65°	3424	3513	4970
70°	2741	3080	4456
75°	1901	2562	4069
80°	1016	2041	3653
85°	342	1509	3217

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 5407 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.3	3.2
10°-20°	208.9	9.1
20°-30°	310.8	13.5
30°-40°	373.6	16.2
40°-50°	393.2	17.1
50°-60°	364.8	15.9
60°-70°	288.5	12.5
70°-80°	176.2	7.7
80°-90°	76.8	3.3
90°-100°	23.9	1.0
100°-110°	5.4	0.2
110°-120°	2.2	0.1
120°-130°	1.2	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°	593.0	25.8
0°-40°	966.6	42.0
0°-60°	1724.6	75.0
0°-90°	2266.0	98.6
90°-120°	31.4	1.4
90°-150°	33.0	1.4
90°-180°	33.0	1.4
0°-180°	2299.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	763	763	763	763	763	
5°	761	760	762	771	773	72
15°	720	748	756	730	731	203
25°	650	692	660	680	691	298
35°	554	570	578	631	652	347
45°	453	455	493	571	592	349
55°	334	339	393	479	517	300
65°	211	218	277	366	400	209
75°	80	106	154	237	252	87
85°	7	25	60	117	134	11
90°	0	8	32	74	87	0
95°	0	2	14	41	50	0
105°	0	1	3	8	11	0
115°	0	1	2	4	4	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°	763.1	763.1	763.1	763.1	763.1
2.5°	764.1	762.1	757.9	761.9	763.0
5°	761.3	759.7	762.4	770.9	773.1
7.5°	754.9	760.8	767.8	783.4	788.3
10°	745.4	756.6	777.6	790.8	785.7
12.5°	733.9	752.9	781.0	755.2	743.2
15°	720.5	748.2	755.5	730.5	731.0
17.5°	704.8	744.3	721.8	721.2	716.7
20°	687.9	731.3	701.4	700.2	695.4
22.5°	669.7	714.0	683.4	680.9	694.0
25°	650.0	691.5	659.9	679.7	690.7
27.5°	625.3	661.9	640.3	668.3	682.1
30°	600.2	631.5	620.3	659.3	683.9
32.5°	576.7	599.6	603.8	655.9	659.9
35°	554.5	569.9	578.5	631.0	652.5
37.5°	530.1	534.3	557.0	620.6	641.3
40°	505.2	502.6	539.0	603.5	632.1
42.5°	478.5	477.6	519.9	594.9	609.2
45°	453.2	455.2	492.6	570.7	592.0
47.5°	427.2	429.8	466.8	544.1	570.5
50°	397.0	400.5	443.8	520.5	554.5
52.5°	364.4	370.9	421.4	498.1	532.4
55°	333.8	339.2	393.0	479.0	517.1
57.5°	305.8	309.1	363.6	454.9	483.6
60°	278.3	279.0	335.9	428.1	455.6
62.5°	246.7	248.1	307.5	396.6	433.4
65°	211.3	218.0	276.9	366.4	399.7
67.5°	178.2	189.8	245.6	338.7	356.2
70°	142.7	162.5	215.0	306.3	318.5
72.5°	110.2	133.4	183.6	269.9	287.1
75°	79.9	105.9	154.4	237.2	252.2
77.5°	53.8	80.2	127.0	201.2	220.9
80°	32.2	58.6	102.6	167.7	190.0
82.5°	16.5	39.3	79.6	140.7	160.6
85°	7.2	24.9	60.2	116.7	134.0
87.5°	2.0	14.1	44.3	94.4	109.0
90°	0.2	7.5	31.6	74.0	87.2
92.5°	0.2	3.6	22.2	56.0	66.1
95°	0.2	1.9	13.8	40.6	49.6
97.5°	0.2	1.1	8.4	28.8	36.4
100°	0.2	0.9	5.0	19.1	26.0
102.5°	0.2	1.1	3.4	12.1	16.9
105°	0.2	1.1	2.8	7.9	11.2
107.5°	0.3	1.1	2.5	5.9	7.8
110°	0.2	0.9	2.6	4.5	6.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.8	2.5	3.7	4.5
115°	0.2	0.6	2.2	3.6	3.7
117.5°	0.3	0.5	1.7	3.6	3.7
120°	0.3	0.3	1.4	3.4	3.9
122.5°	0.3	0.3	1.1	3.1	3.7
125°	0.2	0.3	0.9	2.3	3.3
127.5°	0.3	0.3	0.8	1.9	2.5
130°	0.3	0.3	0.6	1.4	1.9
132.5°	0.3	0.3	0.5	1.1	1.4
135°	0.3	0.3	0.3	0.8	1.1
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)