

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: P518049

Luminaire Tested: HVL8-4-LD4-1STD-35-UNV-O-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: P518049
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1STD-35-UNV-O-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: 3328.0 lumens
Efficiency: N/A
Efficacy: 102.1 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

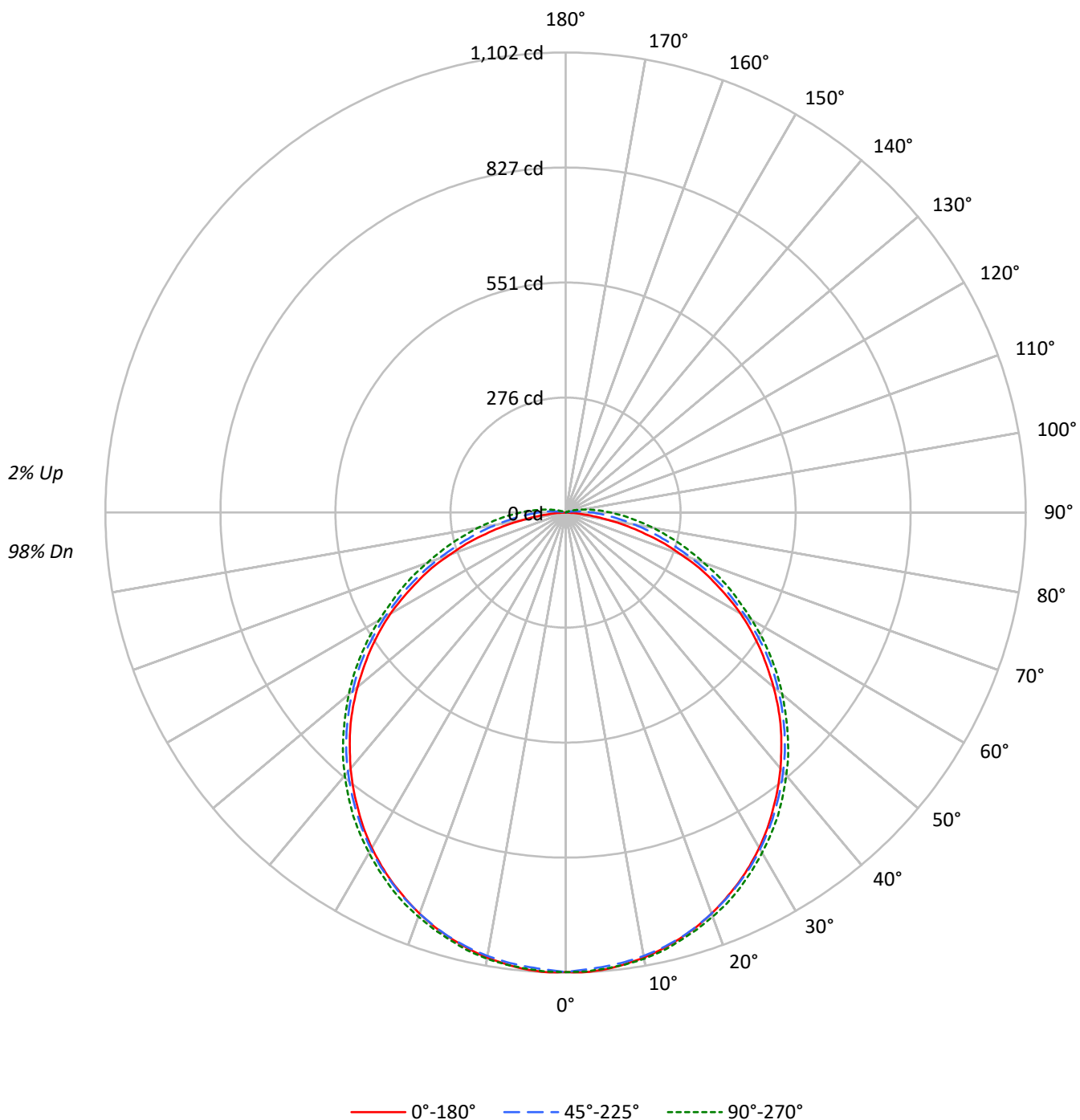
Input Watts (W): 32.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101			98
1	108	102	98	94	105	100	96	92	95	92	89	91	88	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	77	73	79	75	71	76	72	69			67
3	89	78	69	63	86	76	68	62	73	66	61	70	64	59	67	62	58			56
4	81	69	60	53	79	67	59	52	65	57	52	62	56	51	60	54	50			47
5	75	61	52	45	72	60	52	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	40	67	54	46	39	52	45	39	50	44	38	49	43	38			36
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34	44	38	34			32
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	41	35	30			28
9	55	42	34	28	54	41	33	28	40	33	28	39	32	27	38	32	27			25
10	52	39	31	25	51	38	30	25	37	30	25	36	29	25	35	29	25			23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4443	4443	4443
5°	4434	4344	4348
10°	4405	4266	4261
15°	4367	4180	4157
20°	4326	4084	4055
25°	4277	3985	3952
30°	4221	3880	3834
35°	4150	3764	3718
40°	4076	3642	3582
45°	3996	3509	3436
50°	3892	3356	3279
55°	3779	3188	3106
60°	3646	2969	2903
65°	3428	2725	2702
70°	3115	2438	2469
75°	2672	2122	2256
80°	2010	1813	2063
85°	1076	1499	1879

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3996 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.2	3.1
10°-20°	298.8	9.0
20°-30°	453.3	13.6
30°-40°	548.2	16.5
40°-50°	572.0	17.2
50°-60°	523.0	15.7
60°-70°	407.7	12.2
70°-80°	255.0	7.7
80°-90°	115.8	3.5
90°-100°	38.8	1.2
100°-110°	9.7	0.3
110°-120°	1.5	0.0
120°-130°	0.0	0.0
130°-140°	0.0	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°	856.3	25.7
0°-40°	1404.5	42.2
0°-60°	2499.4	75.1
0°-90°	3277.9	98.5
90°-120°	50.1	1.5
90°-150°	50.1	1.5
90°-180°	50.0	1.5
0°-180°	3328.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1101	1101	1101	1101	1101	
5°	1098	1096	1091	1096	1096	104
15°	1057	1058	1056	1062	1061	298
25°	979	980	981	989	991	451
35°	867	870	874	883	887	542
45°	729	736	742	749	752	562
55°	569	576	586	595	599	508
65°	391	398	412	428	435	387
75°	198	210	241	270	280	211
85°	34	63	109	144	156	43
90°	0	24	64	96	108	1
95°	0	6	33	60	70	0
105°	0	1	5	16	22	1
115°	1	1	1	3	4	1
125°	0	0	0	0	0	0
135°	0	0	0	0	0	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°	1100.7	1100.7	1100.7	1100.7	1100.7
2.5°	1102.0	1100.4	1095.5	1100.4	1100.2
5°	1098.4	1096.3	1091.4	1096.5	1096.5
7.5°	1091.1	1090.3	1085.9	1091.9	1091.9
10°	1082.5	1082.3	1078.6	1085.1	1085.4
12.5°	1070.6	1071.6	1068.3	1074.5	1075.3
15°	1056.6	1058.4	1055.6	1061.5	1061.3
17.5°	1041.3	1042.3	1040.2	1047.0	1046.7
20°	1022.3	1023.6	1022.1	1029.1	1029.9
22.5°	1001.3	1003.1	1002.9	1010.1	1012.2
25°	979.0	979.8	980.8	989.1	990.7
27.5°	954.4	955.7	957.5	965.0	966.6
30°	927.4	929.4	931.5	939.3	941.4
32.5°	898.8	900.9	903.5	913.6	914.7
35°	866.7	870.5	874.2	883.0	886.6
37.5°	834.5	839.4	842.8	852.1	855.0
40°	800.5	805.4	810.9	820.7	822.5
42.5°	764.9	770.6	777.1	786.0	789.1
45°	729.1	735.6	741.6	748.9	752.5
47.5°	690.5	697.0	704.2	712.5	714.9
50°	650.5	658.0	665.8	673.6	677.8
52.5°	609.5	618.6	627.4	635.7	639.6
55°	569.0	575.8	586.4	595.0	598.9
57.5°	527.0	532.7	542.3	556.3	558.4
60°	484.2	489.4	499.2	510.7	515.3
62.5°	437.0	444.0	454.3	468.9	473.0
65°	391.0	397.8	411.5	427.9	434.6
67.5°	346.7	349.0	366.6	383.8	394.7
70°	294.2	303.1	323.6	344.6	352.9
72.5°	249.1	257.9	280.5	305.1	315.5
75°	198.0	210.2	240.8	269.6	279.7
77.5°	153.1	166.6	204.5	233.5	245.2
80°	106.9	127.9	169.2	201.9	214.6
82.5°	67.2	93.2	137.3	171.5	182.7
85°	34.3	63.3	108.7	143.8	156.5
87.5°	9.1	41.0	84.6	118.1	131.0
90°	0.3	23.6	64.1	96.3	107.9
92.5°	0.3	13.2	47.7	76.5	88.5
95°	0.3	6.2	33.2	60.2	69.5
97.5°	0.3	2.6	22.8	45.4	54.7
100°	0.3	1.3	14.5	33.0	41.0
102.5°	0.5	0.8	9.1	23.6	30.1
105°	0.5	0.8	5.4	16.1	21.5
107.5°	0.5	0.8	3.1	10.9	14.8
110°	0.8	0.8	1.8	6.7	9.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	0.8	1.0	4.4	6.5
115°	0.8	0.8	1.0	2.9	4.2
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
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)