

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: P518109

Luminaire Tested: HVL8-4-LD4-3HI-30-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: P518109
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3HI-30-UNV-O-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: 12220.0 lumens
Efficiency: N/A
Efficacy: 97.1 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

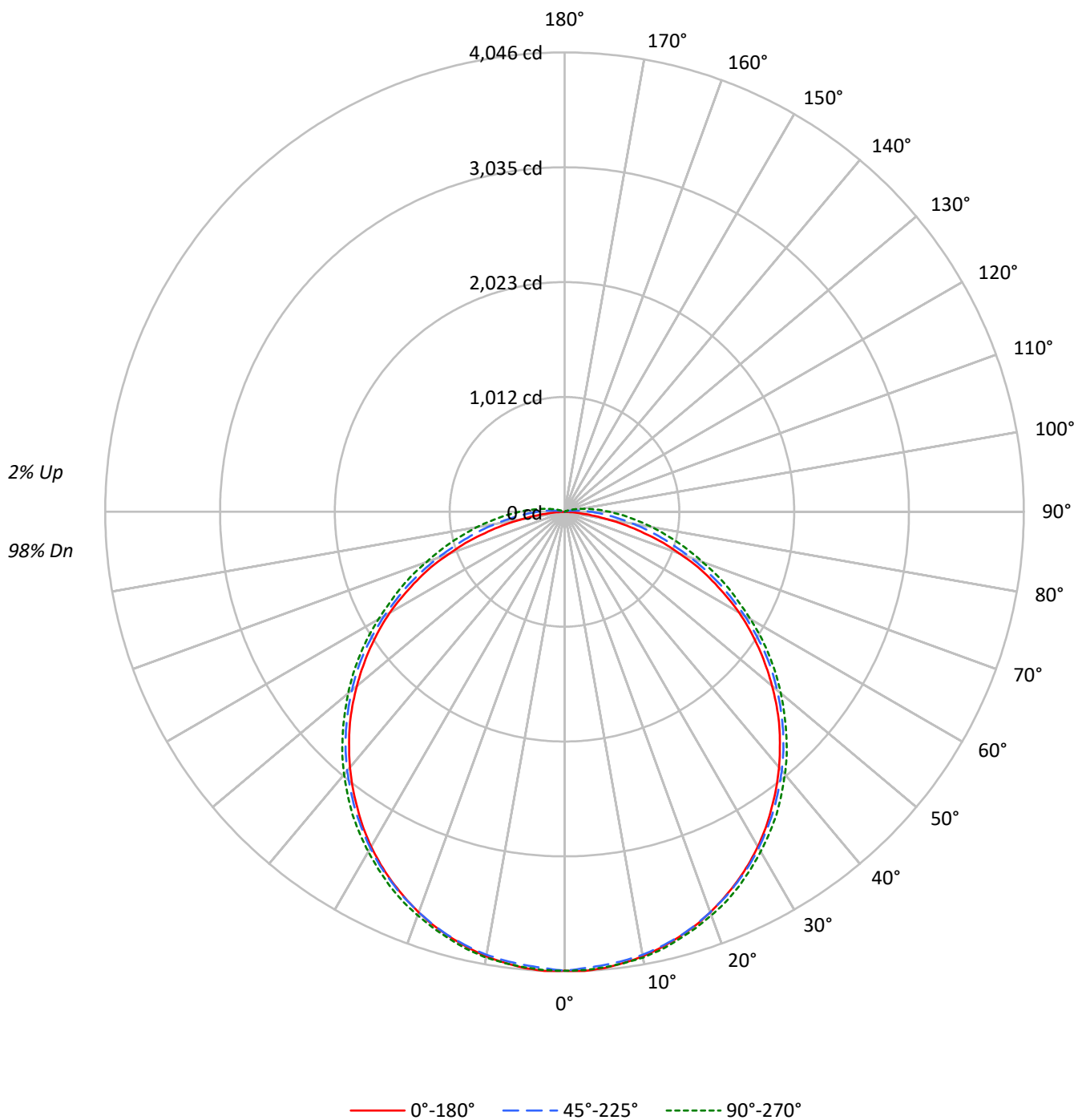
Input Watts (W): 125.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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					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°	16314	16314	16314
5°	16282	15949	15965
10°	16173	15664	15645
15°	16034	15348	15262
20°	15884	14995	14888
25°	15705	14633	14510
30°	15498	14246	14078
35°	15236	13821	13652
40°	14965	13374	13155
45°	14672	12886	12617
50°	14290	12323	12040
55°	13878	11705	11403
60°	13387	10903	10659
65°	12588	10006	9922
70°	11441	8950	9065
75°	9812	7791	8286
80°	7380	6655	7574
85°	3946	5506	6896

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 14672 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	382.5	3.1
10°-20°	1097.1	9.0
20°-30°	1664.6	13.6
30°-40°	2012.8	16.5
40°-50°	2100.2	17.2
50°-60°	1920.2	15.7
60°-70°	1496.9	12.2
70°-80°	936.4	7.7
80°-90°	425.3	3.5
90°-100°	142.6	1.2
100°-110°	35.8	0.3
110°-120°	5.6	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°	3144.2	25.7
0°-40°	5157.0	42.2
0°-60°	9177.4	75.1
0°-90°	12036.0	98.5
90°-120°	184.0	1.5
90°-150°	184.0	1.5
90°-180°	184.0	1.5
0°-180°	12220.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4042	4042	4042	4042	4042	
5°	4033	4025	4007	4026	4026	383
15°	3880	3886	3876	3898	3897	1095
25°	3595	3598	3602	3632	3638	1656
35°	3182	3196	3210	3242	3256	1992
45°	2677	2701	2723	2750	2763	2063
55°	2089	2114	2153	2185	2199	1867
65°	1436	1461	1511	1571	1596	1421
75°	727	772	884	990	1027	775
85°	126	232	399	528	574	159
90°	1	87	235	354	396	5
95°	1	23	122	221	255	1
105°	2	3	20	59	79	2
115°	3	3	4	10	15	2
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°	4041.6	4041.6	4041.6	4041.6	4041.6
2.5°	4046.4	4040.7	4022.6	4040.7	4039.7
5°	4033.1	4025.4	4007.3	4026.4	4026.4
7.5°	4006.4	4003.5	3987.3	4009.2	4009.2
10°	3974.9	3974.0	3960.7	3984.5	3985.4
12.5°	3931.1	3934.9	3922.5	3945.4	3948.3
15°	3879.7	3886.3	3875.9	3897.8	3896.8
17.5°	3823.5	3827.3	3819.6	3844.4	3843.5
20°	3753.9	3758.7	3752.9	3778.7	3781.5
22.5°	3676.7	3683.4	3682.4	3709.1	3716.7
25°	3594.8	3597.6	3601.5	3631.9	3637.7
27.5°	3504.3	3509.0	3515.7	3543.3	3549.1
30°	3405.2	3412.8	3420.4	3449.0	3456.6
32.5°	3300.4	3308.0	3317.5	3354.7	3358.5
35°	3182.2	3196.5	3209.9	3242.3	3255.6
37.5°	3064.1	3082.2	3094.6	3128.9	3139.4
40°	2939.3	2957.4	2977.4	3013.6	3020.3
42.5°	2808.8	2829.7	2853.5	2885.9	2897.4
45°	2677.3	2701.1	2723.0	2749.7	2763.0
47.5°	2535.3	2559.1	2585.8	2616.3	2624.9
50°	2388.6	2416.2	2444.8	2473.4	2488.6
52.5°	2238.0	2271.4	2303.8	2334.3	2348.6
55°	2089.4	2114.2	2153.3	2184.7	2199.0
57.5°	1935.1	1956.0	1991.3	2042.7	2050.4
60°	1777.9	1796.9	1833.1	1875.0	1892.2
62.5°	1604.5	1630.2	1668.3	1721.7	1736.9
65°	1435.8	1460.6	1511.1	1571.1	1595.9
67.5°	1272.9	1281.5	1346.3	1409.1	1449.2
70°	1080.4	1112.8	1188.1	1265.3	1295.8
72.5°	914.7	947.1	1029.9	1120.5	1158.6
75°	727.0	771.7	884.2	989.9	1027.1
77.5°	562.1	611.7	750.8	857.5	900.4
80°	392.5	469.7	621.2	741.3	787.9
82.5°	246.8	342.0	504.0	629.8	670.7
85°	125.8	232.5	399.2	527.8	574.5
87.5°	33.3	150.5	310.6	433.5	481.1
90°	1.0	86.7	235.3	353.5	396.4
92.5°	1.0	48.6	175.3	281.1	324.9
95°	1.0	22.9	122.0	221.0	255.3
97.5°	1.0	9.5	83.8	166.7	201.0
100°	1.0	4.8	53.4	121.0	150.5
102.5°	1.9	2.9	33.3	86.7	110.5
105°	1.9	2.9	20.0	59.1	79.1
107.5°	1.9	2.9	11.4	40.0	54.3
110°	2.9	2.9	6.7	24.8	36.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.9	2.9	3.8	16.2	23.8
115°	2.9	2.9	3.8	10.5	15.2
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)