

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: P518121

Luminaire Tested: HVL8-4-LD4-3HI-50-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: P518121
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3HI-50-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13174.0 lumens
Efficiency: N/A
Efficacy: 104.6 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

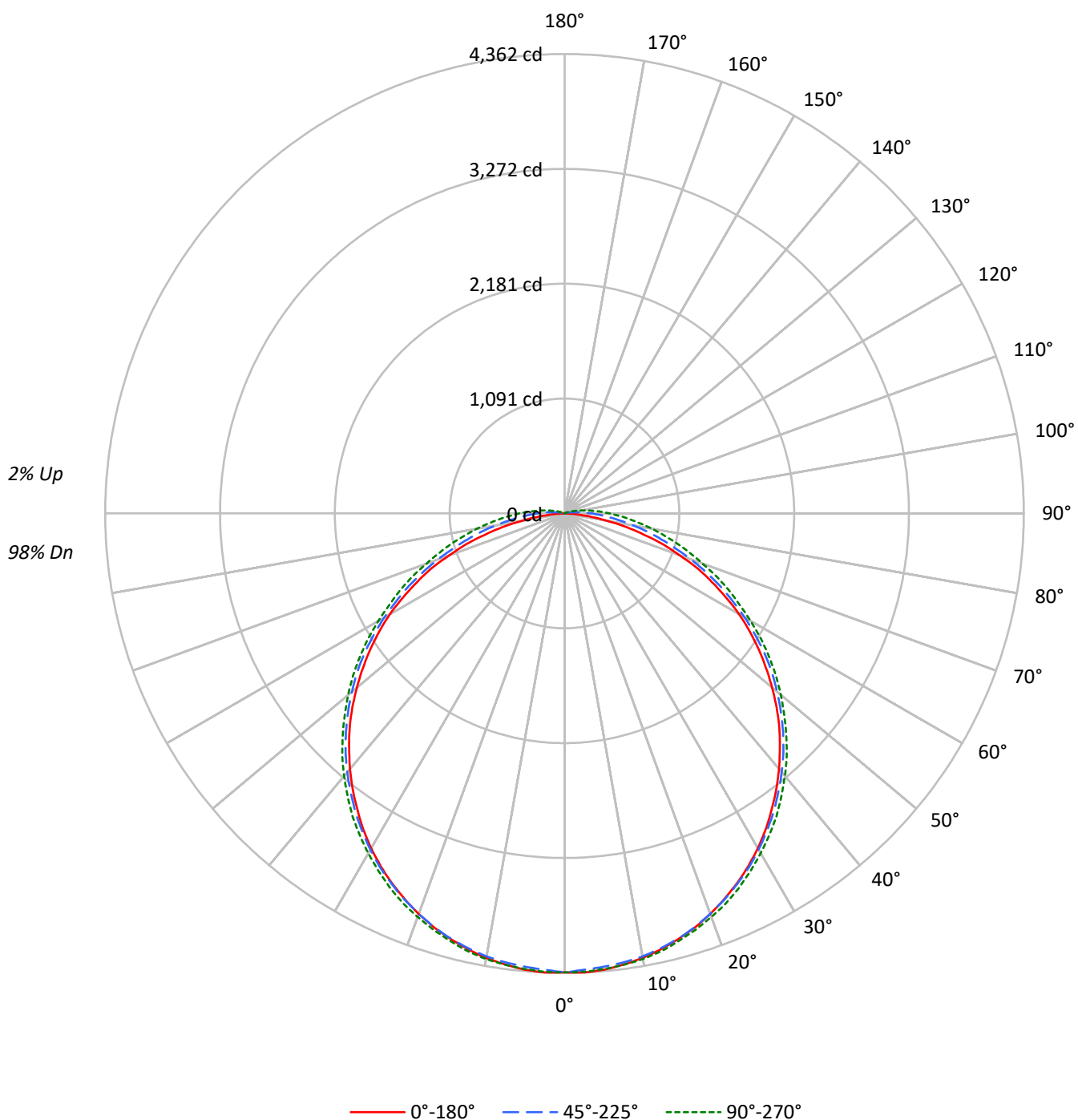
Input Watts (W): 125.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	17588	17588	17588
5°	17553	17195	17211
10°	17436	16887	16867
15°	17285	16546	16453
20°	17124	16166	16051
25°	16931	15775	15642
30°	16708	15358	15178
35°	16426	14900	14718
40°	16133	14418	14182
45°	15817	13892	13602
50°	15406	13285	12980
55°	14961	12619	12293
60°	14432	11754	11491
65°	13571	10788	10697
70°	12334	9649	9772
75°	10577	8399	8933
80°	7957	7174	8166
85°	4254	5936	7435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 15817 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	412.3	3.1
10°-20°	1182.7	9.0
20°-30°	1794.6	13.6
30°-40°	2170.0	16.5
40°-50°	2264.2	17.2
50°-60°	2070.1	15.7
60°-70°	1613.8	12.2
70°-80°	1009.5	7.7
80°-90°	458.5	3.5
90°-100°	153.7	1.2
100°-110°	38.6	0.3
110°-120°	6.1	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°	3389.6	25.7
0°-40°	5559.6	42.2
0°-60°	9893.9	75.1
0°-90°	12975.7	98.5
90°-120°	198.3	1.5
90°-150°	198.3	1.5
90°-180°	198.0	1.5
0°-180°	13174.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4357	4357	4357	4357	4357	
5°	4348	4340	4320	4341	4341	413
15°	4182	4190	4178	4202	4201	1181
25°	3875	3878	3883	3916	3922	1786
35°	3431	3446	3460	3495	3510	2147
45°	2886	2912	2936	2964	2979	2224
55°	2252	2279	2321	2355	2371	2012
65°	1548	1575	1629	1694	1720	1532
75°	784	832	953	1067	1107	835
85°	136	251	430	569	619	172
90°	1	94	254	381	427	5
95°	1	25	132	238	275	1
105°	2	3	22	64	85	2
115°	3	3	4	11	16	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°	4357.2	4357.2	4357.2	4357.2	4357.2
2.5°	4362.3	4356.1	4336.6	4356.1	4355.1
5°	4347.9	4339.7	4320.2	4340.7	4340.7
7.5°	4319.2	4316.1	4298.6	4322.2	4322.2
10°	4285.3	4284.2	4269.9	4295.5	4296.6
12.5°	4238.0	4242.1	4228.8	4253.4	4256.5
15°	4182.5	4189.7	4178.4	4202.1	4201.0
17.5°	4121.9	4126.1	4117.8	4144.5	4143.5
20°	4047.0	4052.1	4045.9	4073.7	4076.8
22.5°	3963.8	3971.0	3969.9	3998.7	4006.9
25°	3875.4	3878.5	3882.6	3915.5	3921.7
27.5°	3777.9	3783.0	3790.2	3820.0	3826.1
30°	3671.0	3679.2	3687.5	3718.3	3726.5
32.5°	3558.0	3566.3	3576.5	3616.6	3620.7
35°	3430.7	3446.1	3460.5	3495.4	3509.8
37.5°	3303.3	3322.8	3336.2	3373.2	3384.5
40°	3168.8	3188.3	3209.8	3248.9	3256.1
42.5°	3028.0	3050.6	3076.3	3111.2	3123.6
45°	2886.3	2912.0	2935.6	2964.4	2978.7
47.5°	2733.2	2758.9	2787.7	2820.5	2829.8
50°	2575.1	2604.8	2635.7	2666.5	2682.9
52.5°	2412.8	2448.7	2483.6	2516.5	2531.9
55°	2252.5	2279.2	2321.4	2355.3	2370.7
57.5°	2086.1	2108.7	2146.7	2202.2	2210.4
60°	1916.7	1937.2	1976.2	2021.4	2039.9
62.5°	1729.7	1757.5	1798.5	1856.1	1872.5
65°	1547.9	1574.6	1629.1	1693.8	1720.5
67.5°	1372.3	1381.5	1451.4	1519.2	1562.3
70°	1164.8	1199.7	1280.9	1364.1	1396.9
72.5°	986.1	1021.0	1110.3	1207.9	1249.0
75°	783.7	832.0	953.2	1067.2	1107.3
77.5°	606.0	659.4	809.4	924.4	970.7
80°	423.2	506.4	669.7	799.1	849.5
82.5°	266.0	368.7	543.4	678.9	723.1
85°	135.6	250.6	430.4	569.0	619.4
87.5°	36.0	162.3	334.9	467.4	518.7
90°	1.0	93.5	253.7	381.1	427.3
92.5°	1.0	52.4	189.0	303.0	350.3
95°	1.0	24.7	131.5	238.3	275.3
97.5°	1.0	10.3	90.4	179.8	216.7
100°	1.0	5.1	57.5	130.4	162.3
102.5°	2.1	3.1	36.0	93.5	119.1
105°	2.1	3.1	21.6	63.7	85.3
107.5°	2.1	3.1	12.3	43.1	58.5
110°	3.1	3.1	7.2	26.7	39.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	3.1	3.1	4.1	17.5	25.7
115°	3.1	3.1	4.1	11.3	16.4
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)