



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

Report No: L111601601

Date: 11/11/2016



NVLAP LAB CODE 200927-0

**Report No:** L111601601  
**Prepared For:** Avenue Lighting  
 18324 Oxnard Street # 2 Tarzana CA 91356  
**Model Number:** HF9202-IVY  
**Test:** Photometric/Electrical Test

**Standards Used:** Appropriate part or all test guidelines were used for test performed:  
*IESNA LM79: 2008* Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products  
*ANSI NEMA ANSLG C78.377: 2008* Specification of the Chromaticity of Solid State Lighting Products  
*ANSI C82.77:2002:* Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

**Description of Sample:** Client submitted the sample. Catalog number is HF9202-IVY. Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 11/8/16

**Date of Tests:** 11/9/16 - 11/11/16

**Seasoning of Sample:** No seasoning was performed in accordance with IESNA LM-79.

**Equipment List**

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

**Test Summary**

<b>Manufacturer:</b>	Avenue Lighting
<b>Model Number:</b>	HF9202-IVY
<b>Driver Model Number:</b>	CUSTOM DRIVER
<b>Total Lumens:</b>	3174.93
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.53
<b>Input Power (W):</b>	59.01
<b>Input Power Factor:</b>	0.92
<b>Current ATHD @ 120V(%):</b>	42%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	54
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	1:10
<b>Total Operating Time (Hours):</b>	2:20
<b>Off State Power(W):</b>	0.00

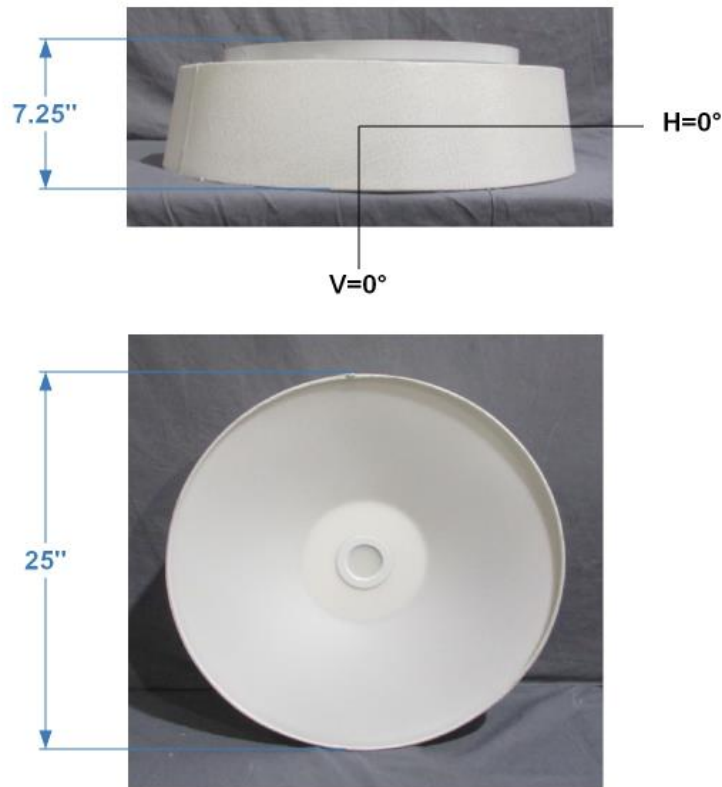


FIG.1 LUMINAIRE

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

## Test Methods

### Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Released by:



Jeff Ahn  
Engineering Manager

Test Report Reviewed by:



Steve Kang  
Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 8*



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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L111601601.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L111601601  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 11/11/2016  
 [MANUFAC] AVENUE LIGHTING  
 [LUMCAT] HF9202-IVY  
 [LUMINAIRE] FLUSH MOUNT LED FAGRIC FIXTURE  
 [BALLASTCAT] CUSTOM DRIVER  
 [LAMPPOSITION] 0,0  
 [LAMPCAT] N/A  
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
 [INPUT] 120VAC, 59.01W  
 [TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3175
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	54
Total Luminaire Watts	59.01
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.26
Spacing Criterion (90-270)	1.26
Spacing Criterion (Diagonal)	1.38
Basic Luminous Shape	Circular w/ Sides
Luminous Length (0-180)	2.04 ft (Diameter)
Luminous Width (90-270)	2.04 ft (Diameter)
Luminous Height	0.50 ft

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	1901	1901	1901
55	1686	1686	1686
65	1464	1464	1464
75	1057	1057	1057
85	512	512	512

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L111601601.IES

CANDELA TABULATION

	<u>0</u>
0	812
5	808
10	796
15	776
20	749
25	716
30	678
35	635
40	587
45	536
50	482
55	425
60	373
65	314
70	252
75	180
80	107
85	62
90	47
95	55
100	70
105	106
110	136
115	147
120	153
125	155
130	155
135	154
140	154
145	153
150	146
155	138
160	132
165	126
170	123
175	126
180	0

**IES INDOOR REPORT**  
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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	295.68	N.A.	9.30
0-30	625.74	N.A.	19.70
0-40	1022.97	N.A.	32.20
0-60	1818.27	N.A.	57.30
0-80	2318.31	N.A.	73.00
0-90	2394.08	N.A.	75.40
10-90	2317.33	N.A.	73.00
20-40	727.29	N.A.	22.90
20-50	1140.93	N.A.	35.90
40-70	1105.63	N.A.	34.80
60-80	500.04	N.A.	15.70
70-80	189.71	N.A.	6.00
80-90	75.77	N.A.	2.40
90-110	172.24	N.A.	5.40
90-120	316.83	N.A.	10.00
90-130	455.43	N.A.	14.30
90-150	670.14	N.A.	21.10
90-180	780.85	N.A.	24.60
110-180	608.61	N.A.	19.20
0-180	3174.93	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	76.75
10-20	218.93
20-30	330.06
30-40	397.23
40-50	413.63
50-60	381.67
60-70	310.33
70-80	189.71
80-90	75.77
90-100	61.89
100-110	110.35
110-120	144.59
120-130	138.60
130-140	119.47
140-150	95.25
150-160	64.26
160-170	36.03
170-180	10.41

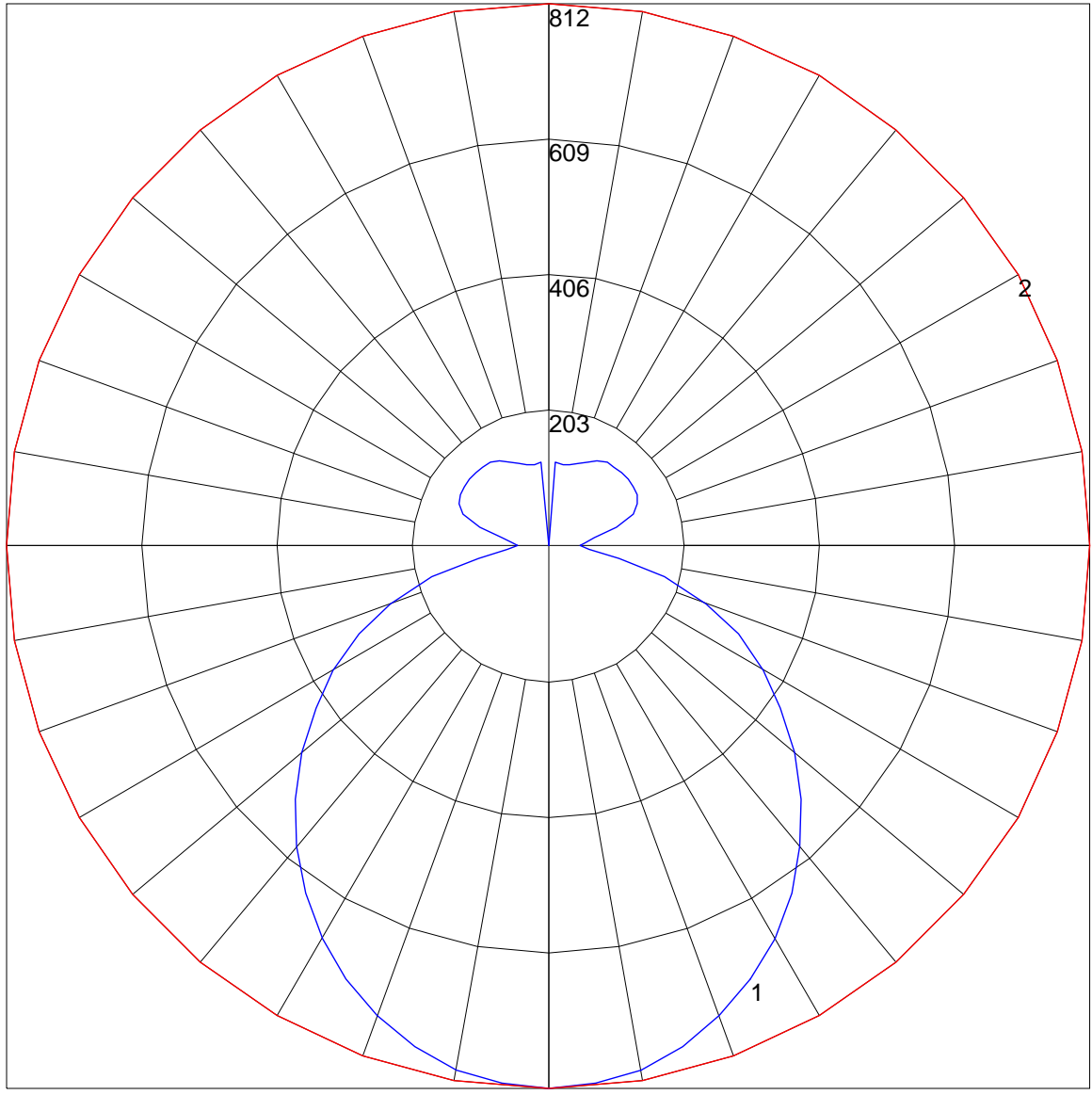
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0	
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79	75	0
1	103	98	94	90	97	93	89	86	84	81	79	76	74	72	69	67	66	62	0
2	93	85	78	72	88	81	75	70	73	69	64	67	63	59	60	57	55	51	0
3	85	74	66	60	80	71	64	58	64	59	54	59	54	50	53	49	46	43	0
4	77	66	57	50	73	63	55	49	57	51	46	52	47	42	47	43	39	36	0
5	71	58	50	43	67	56	48	42	51	44	39	47	41	37	42	38	34	31	0
6	65	52	44	38	62	50	42	36	46	39	34	42	36	32	38	34	30	27	0
7	61	47	39	33	57	45	38	32	42	35	30	38	33	28	35	30	26	24	0
8	56	43	35	29	53	41	34	28	38	31	27	35	29	25	32	27	24	21	0
9	53	39	31	26	50	38	30	25	35	29	24	32	27	23	30	25	21	19	0
10	49	36	29	24	47	35	28	23	32	26	22	30	24	21	27	23	19	17	0

POLAR GRAPH



Maximum Candela = 812 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)