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## Photometric Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-2002

**Prepared For**  
**Auroralight Inc**

Stacia Elmore  
2742 Loker Ave W  
#100  
Carlsbad, CA 92010-6619  
United States

**Catalog Number**  
**HSL16/HSL20-LM-12-W-30 (12W, 40° WIDE OPTIC, 3000K)**

Order Number  
**13931356**  
Test Number  
**13931356.12A**

Revision of Test Number 13931356.12 on:

2021-08-04  
Test Date

2021-07-30

Prepared By

Josh Mitchell, Technician

Approved By

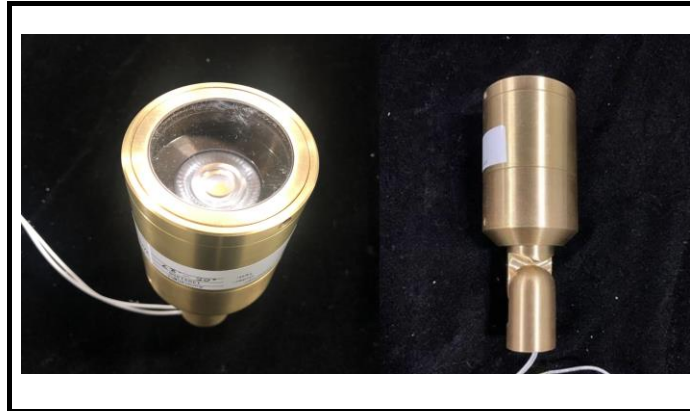
Alexa Lambert, Project Handler

The results contained in this report pertain only to the tested sample.  
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**Luminaire Description:** Cylindrical brass body with adjustable knuckle  
**Lamp:** One white LED  
**Mounting:** Flood  
**Ballast/Driver:** Integral

#### Luminaire



#### Luminaire Characteristics

Luminous Diameter: 1.88 in.

#### Summary of Results

Roadway Classification: Type V, Very Short  
Cutoff Classification: Full Cutoff  
BUG Rating: B1 U0 G0

#### Test Conditions

Test Temperature: 25.6 °C  
Voltage: 12.06 VAC  
Current: 0.9233 A  
Power: 11.12 W  
Power Factor: 0.999  
Frequency: 60 Hz  
Current THD: 4.91 %

Tested in 30 planes left side, 30 planes right side, left and right averaged  
Vertical test increments are 2.5 degrees  
Test distance exceeds five times the greatest luminous opening of luminaire

Laboratory results may not be representative of field performance  
Ballast factors have not been applied



## Distribution - Goniophotometer

### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.6 °C	12.06 VAC	0.9233 A	11.12 W	0.999	60 Hz	4.91 %

### Summary of Results

#### Spacing Criteria

0-180: 0.66  
90-270: 0.66

#### Total Lumen Output:

676.8 Lumens

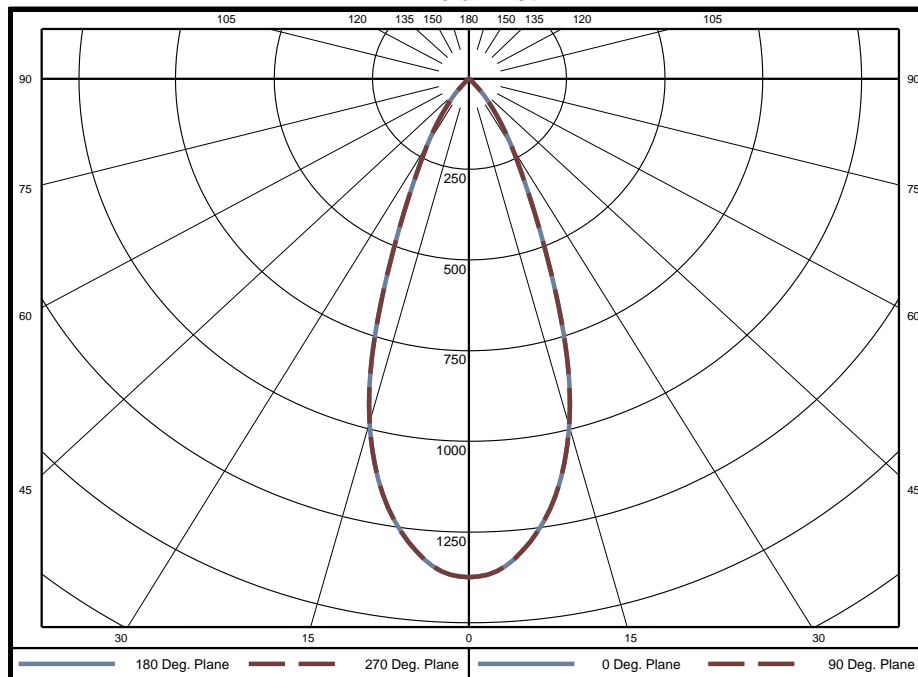
#### Luminaire Efficacy:

60.9 lm/w

#### Maximum Candela:

1375 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	32.4	4.8%	60-65	0.5	0.1%	120-125	0	0.0%
5-10	90.5	13.4%	65-70	0.4	0.1%	125-130	0	0.0%
10-15	130.2	19.2%	70-75	0.4	0.1%	130-135	0	0.0%
15-20	137.7	20.3%	75-80	0.3	0.0%	135-140	0	0.0%
20-25	107.5	15.9%	80-85	0.1	0.0%	140-145	0	0.0%
25-30	74.2	11.0%	85-90	0.1	0.0%	145-150	0	0.0%
30-35	50.8	7.5%	90-95	0	0.0%	150-155	0	0.0%
35-40	30.6	4.5%	95-100	0	0.0%	155-160	0	0.0%
40-45	13.8	2.0%	100-105	0	0.0%	160-165	0	0.0%
45-50	4.6	0.7%	105-110	0	0.0%	165-170	0	0.0%
50-55	1.9	0.3%	110-115	0	0.0%	170-175	0	0.0%
55-60	0.9	0.1%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	654	96.6%
0-60	675	99.7%
0-90	677	100.0%
90-180	0	0.0%



### Candela Tabulation

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)															
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
5	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330
10	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202	1202
15	992	992	992	992	992	992	992	992	992	992	992	992	992	992	992	992
20	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675	675
25	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383
30	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
35	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
40	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
50	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
55	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
60	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
65	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
75	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

### Average Luminance (cd/m<sup>2</sup>)

Horizontal Angle (Degrees)

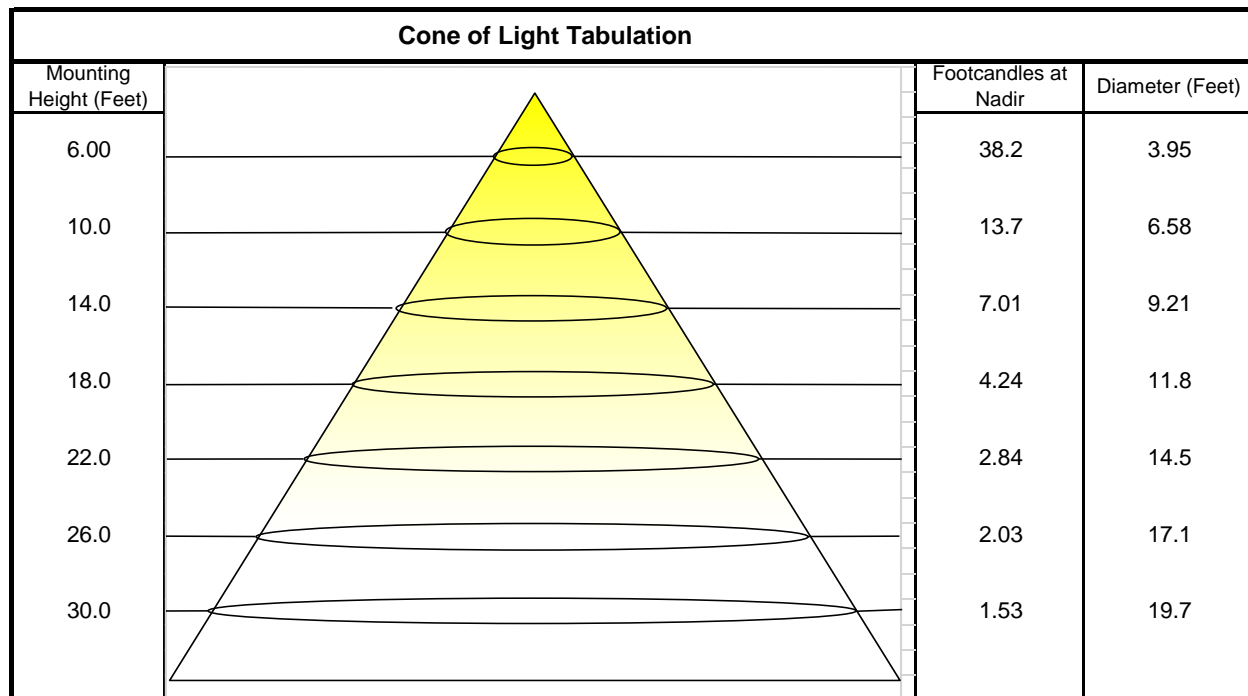
Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	767500	767500	767500
45	13990	13990	13990
55	2721	2721	2721
65	1261	1261	1261
75	1257	1257	1257
85	1082	1082	1082



### Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	806	806	806	806	787	787	787	787	752	752	752	720	720	720	691	691	691	677
1	773	756	741	728	756	742	728	716	714	704	694	689	681	674	666	660	654	642
2	741	712	688	667	726	700	679	660	679	661	646	659	645	632	641	629	619	609
3	710	672	643	619	697	663	636	614	646	623	605	630	611	595	615	600	586	577
4	680	636	604	579	669	629	599	576	615	589	569	602	580	563	590	571	556	547
5	653	604	570	545	642	598	566	542	586	559	538	575	552	533	565	545	528	520
6	626	574	540	515	617	569	537	513	560	531	509	551	525	506	542	520	503	494
7	601	547	512	488	593	543	510	487	535	506	484	527	501	482	520	497	479	471
8	578	523	488	464	571	519	486	463	512	482	461	506	479	459	500	476	457	449
9	556	500	466	442	549	497	464	442	491	461	440	485	458	439	480	455	437	430
10	535	479	445	423	529	476	444	422	471	441	421	466	439	420	462	437	419	411

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	1375 Candela
Central Cone Intensity:	1359 Candela
Beam Flux:	386.9 Lumens
Beam Angle (0-180):	39.7 Degrees
Beam Angle (90-270):	39.7 Degrees
Field Angle (0-180):	68.8 Degrees
Field Angle (90-270):	68.8 Degrees





**IES "BUG" Rating**  
(Back Light, Uplight, Glare)  
Per IES TM-15-11



Luminaire Classification System (LCS)

LCS	Zone	Lumens	Luminaire %
FL	(0-30)	286.3	42.3%
FM	(30-60)	51.6	7.6%
FH	(60-80)	0.8	0.1%
FVH	(80-90)	0.1	0.0%
BL	(0-30)	286.3	42.3%
BM	(30-60)	51.6	7.6%
BH	(60-80)	0.8	0.1%
BVH	(80-90)	0.1	0.0%
UL	(90-100)	0.0	0.0%
UH	(100-180)	0.0	0.0%
Total		677.4	100.0%
<b>BUG Rating</b>	<b>B1 U0 G0</b>		



## Attachment A

## Amended Report Documentation

[illegible]