



UL Verification Services Inc.  
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Allentown, PA 18106  
610-774-1300



## 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-WF-30 (12W, 50° WIDE FLOOD OPTIC, 3000K)**

Order Number

**13931356**

Test Number

**13931356.13A**

Revision of Test Number 13931356.13 on:

2021-08-04

Test Date

2021-07-30

Prepared By

Josh Mitchell, Technician

Approved By

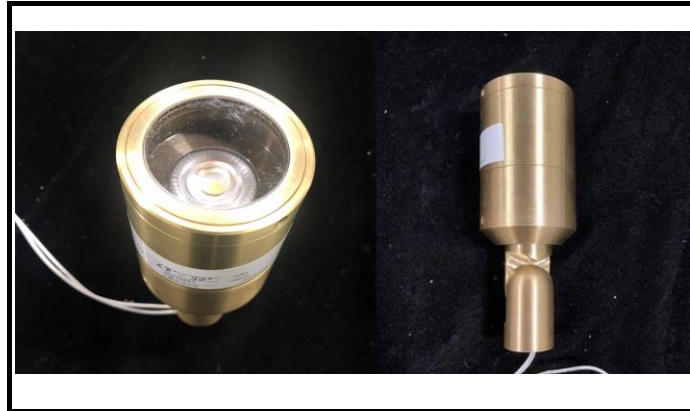
Alexa Lambert, Project Handler

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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: 24.3 °C  
Voltage: 12.25 VAC  
Current: 0.9271 A  
Power: 11.34 W  
Power Factor: 0.998  
Frequency: 60 Hz  
Current THD: 5.10 %

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
24.3 °C	12.25 VAC	0.9271 A	11.34 W	0.998	60 Hz	5.10 %

### Summary of Results

#### Spacing Criteria

0-180: 0.79  
90-270: 0.79

#### Total Lumen Output:

668.9 Lumens

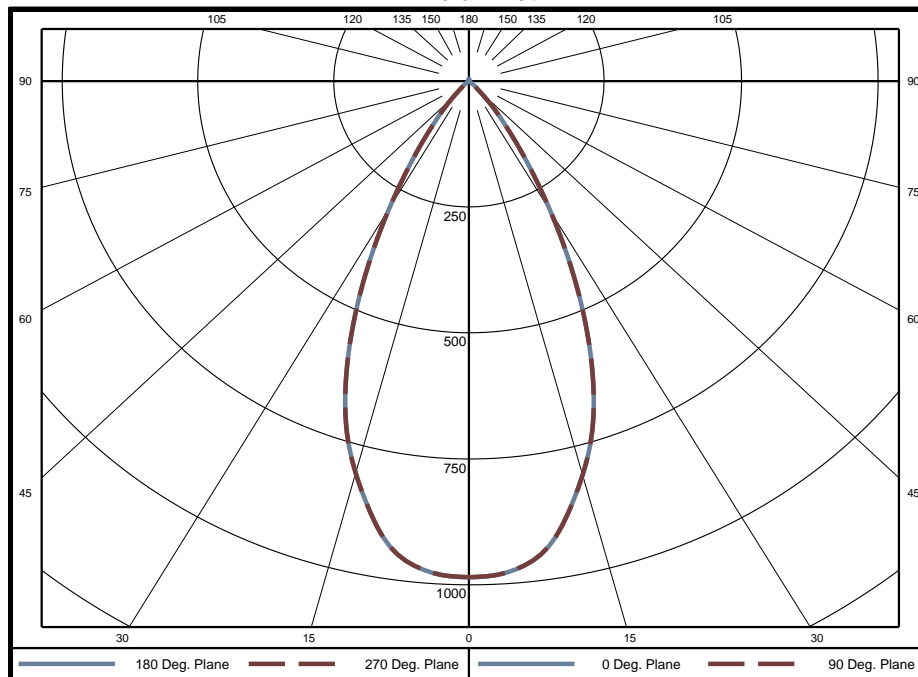
#### Luminaire Efficacy:

59.0 lm/w

#### Maximum Candela:

985 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	23.4	3.5%	60-65	0.6	0.1%	120-125	0	0.0%
5-10	67.9	10.2%	65-70	0.5	0.1%	125-130	0	0.0%
10-15	102.2	15.3%	70-75	0.4	0.1%	130-135	0	0.0%
15-20	122.1	18.3%	75-80	0.3	0.0%	135-140	0	0.0%
20-25	121.3	18.1%	80-85	0.1	0.0%	140-145	0	0.0%
25-30	99.1	14.8%	85-90	0.1	0.0%	145-150	0	0.0%
30-35	66.1	9.9%	90-95	0	0.0%	150-155	0	0.0%
35-40	37.3	5.6%	95-100	0	0.0%	155-160	0	0.0%
40-45	17.2	2.6%	100-105	0	0.0%	160-165	0	0.0%
45-50	6.6	1.0%	105-110	0	0.0%	165-170	0	0.0%
50-55	2.8	0.4%	110-115	0	0.0%	170-175	0	0.0%
55-60	1.0	0.1%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	639	95.6%
0-60	667	99.7%
0-90	669	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	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0	985.0
5	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6	973.6
10	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5
15	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1	808.1
20	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5	670.5
25	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1	488.1
30	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5	302.5
35	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6	159.6
40	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2
45	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
50	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6
55	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
60	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
65	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
70	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
85	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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)

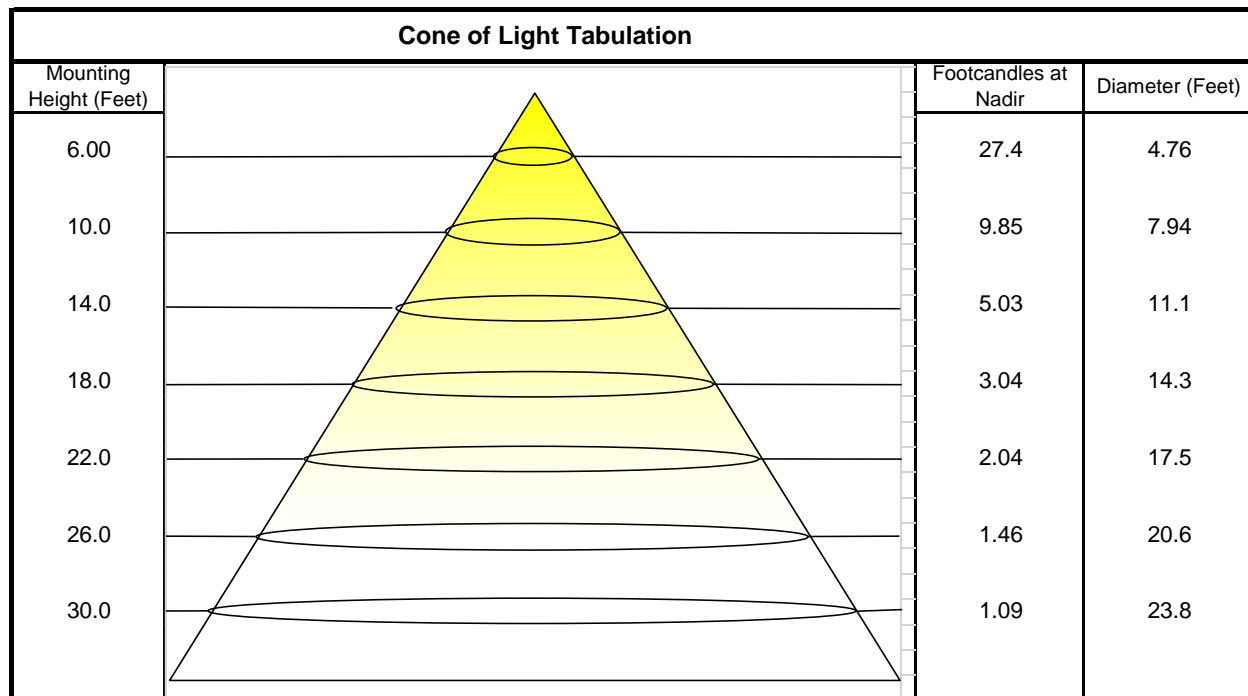
Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	550000	550000	550000
45	19370	19370	19370
55	3379	3379	3379
65	1445	1445	1445
75	1395	1395	1395
85	1052	1052	1052



### 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	796	796	796	796	778	778	778	778	743	743	743	712	712	712	683	683	683	669
1	762	744	729	715	745	730	716	703	703	692	682	678	670	661	655	649	642	631
2	727	697	672	651	713	686	663	643	664	646	629	645	629	616	626	614	603	593
3	694	654	624	599	681	645	617	594	628	604	585	612	592	576	597	581	567	557
4	663	616	582	555	651	608	577	552	594	567	546	581	558	539	569	550	533	524
5	633	581	545	518	622	575	541	516	563	534	511	552	527	507	542	520	503	493
6	604	549	512	485	595	544	509	484	534	503	481	525	498	477	516	493	474	465
7	577	520	483	457	569	515	480	455	507	476	453	499	471	451	492	467	448	440
8	552	493	456	431	544	489	454	430	482	451	428	476	447	426	470	444	424	416
9	528	469	432	407	521	465	431	407	459	428	405	454	425	404	448	422	403	394
10	506	446	410	386	500	443	409	386	438	406	385	433	404	384	428	402	383	374

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	985.0 Candela
Central Cone Intensity:	981 Candela
Beam Flux:	433.3 Lumens
Beam Angle (0-180):	49.8 Degrees
Beam Angle (90-270):	49.8 Degrees
Field Angle (0-180):	76.5 Degrees
Field Angle (90-270):	76.5 Degrees





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



Luminaire Classification System (LCS)

LCS	Zone	Lumens	Luminaire %
FL	(0-30)	267.8	40.0%
FM	(30-60)	65.9	9.8%
FH	(60-80)	0.9	0.1%
FVH	(80-90)	0.1	0.0%
BL	(0-30)	267.8	40.0%
BM	(30-60)	65.9	9.8%
BH	(60-80)	0.9	0.1%
BVH	(80-90)	0.1	0.0%
UL	(90-100)	0.0	0.0%
UH	(100-180)	0.0	0.0%
Total		669.2	100.0%
<b>BUG Rating</b>	<b>B1 U0 G0</b>		



## Attachment A

## Amended Report Documentation

[illegible]