



UL Verification Services Inc.  
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## Photometric Test Report

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

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

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#100  
Carlsbad, CA 92010-6619  
United States

**Catalog Number**  
**HSL16/HSL20-LM-12-UF-30 (12W, 75° ULTRA FLOOD OPTIC, 3000K)**

Order Number

**13931356**

Test Number

**13931356.11A**

Revision of Test Number 13931356.11 on:

2021-08-04

Test Date

2021-07-29

Prepared By

Josh Mitchell, Technician

Approved By

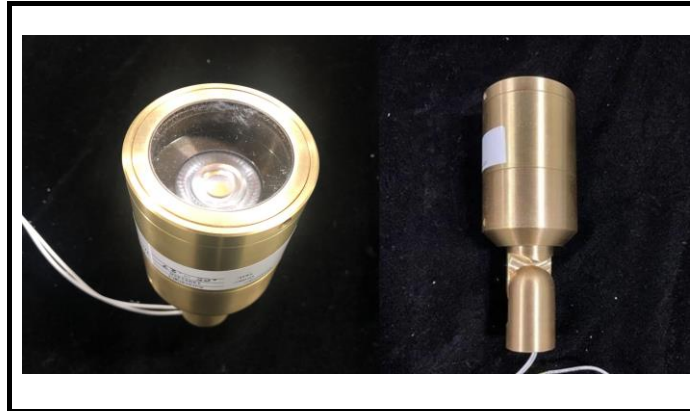
Alexa Lambert, Project Handler

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: 25.8 °C  
Voltage: 12.08 VAC  
Current: 0.8969 A  
Power: 10.82 W  
Power Factor: 0.998  
Frequency: 60 Hz  
Current THD: 5.30 %

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
25.8 °C	12.08 VAC	0.8969 A	10.82 W	0.998	60 Hz	5.30 %

### Summary of Results

#### Spacing Criteria

0-180: 1.15  
90-270: 1.15

#### Total Lumen Output:

506.6 Lumens

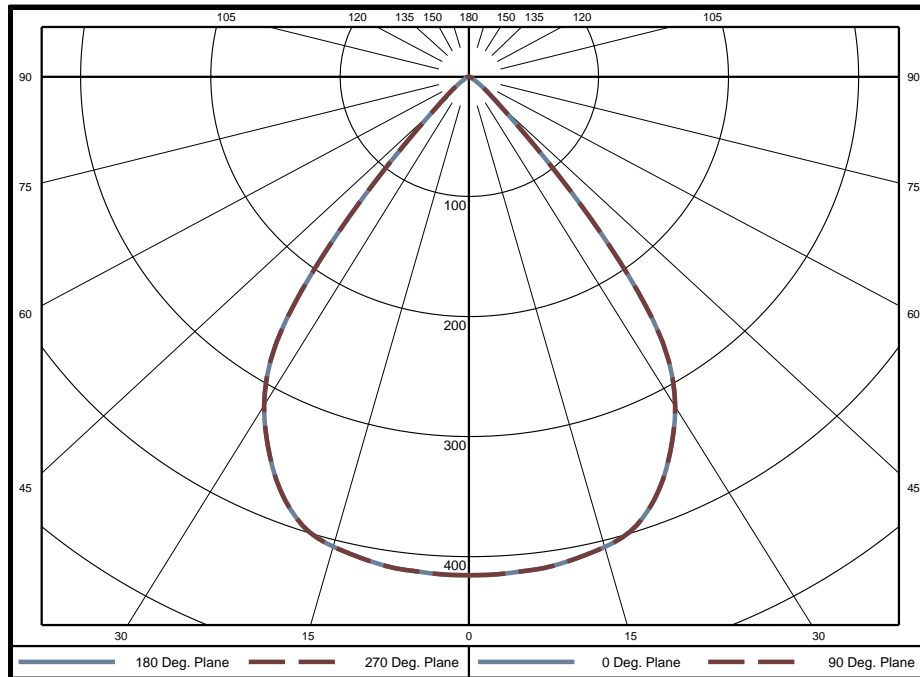
#### Luminaire Efficacy:

46.8 lm/w

#### Maximum Candela:

416 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	9.93	2.0%	60-65	1.57	0.3%	120-125	0	0.0%
5-10	29.58	5.8%	65-70	1.38	0.3%	125-130	0	0.0%
10-15	48.48	9.6%	70-75	1.15	0.2%	130-135	0	0.0%
15-20	65.87	13.0%	75-80	0.80	0.2%	135-140	0	0.0%
20-25	78.93	15.6%	80-85	0.41	0.1%	140-145	0	0.0%
25-30	85.76	16.9%	85-90	0.14	0.0%	145-150	0	0.0%
30-35	84.25	16.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	58.96	11.6%	95-100	0	0.0%	155-160	0	0.0%
40-45	22.93	4.5%	100-105	0	0.0%	160-165	0	0.0%
45-50	9.38	1.9%	105-110	0	0.0%	165-170	0	0.0%
50-55	4.83	1.0%	110-115	0	0.0%	170-175	0	0.0%
55-60	2.26	0.4%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	462	91.1%
0-60	501	98.9%
0-90	507	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	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5	415.5
	5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5	414.5
	10	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8	411.8
	15	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6	405.6
	20	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3	391.3
	25	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9	359.9
	30	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6	317.6
	35	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4	246.4
	40	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6	107.6
	45	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7	33.7
	50	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
	55	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
	60	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
	65	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	70	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	75	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	80	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
	85	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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

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

Horizontal Angle (Degrees)

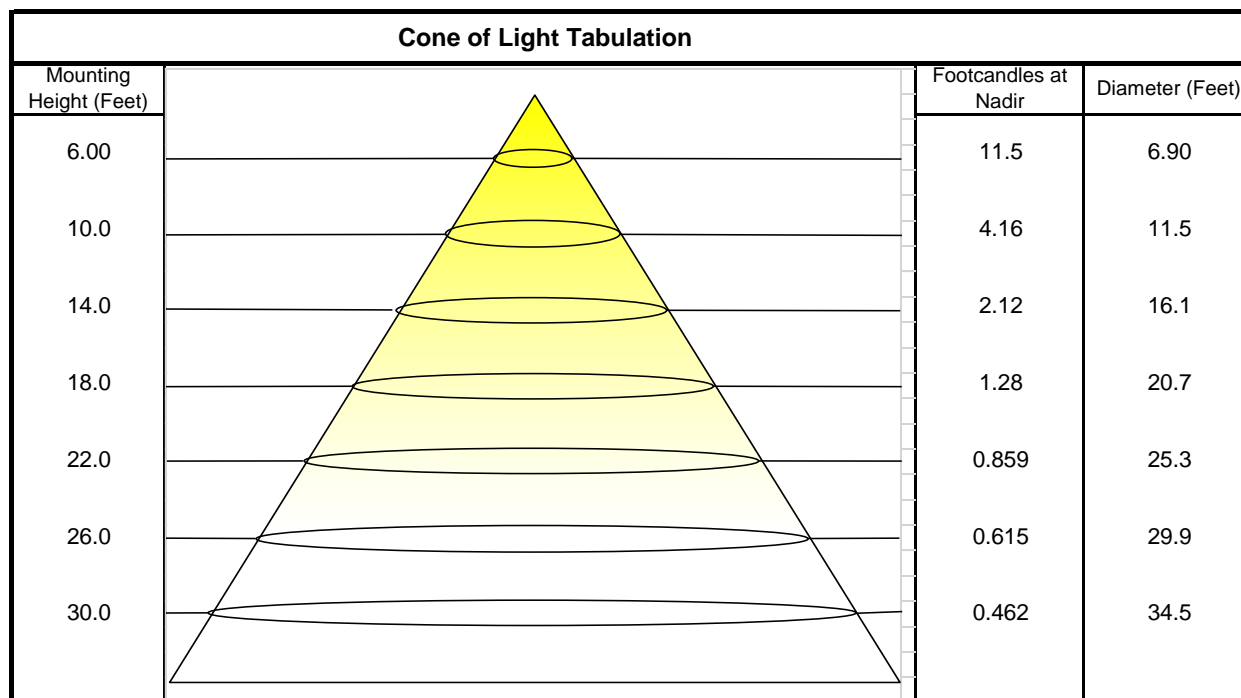
Vertical Angle (Degrees)		0	45	90
	0	232000	232000	232000
	45	26600	26600	26600
	55	7216	7216	7216
	65	3891	3891	3891
	75	4042	4042	4042
	85	2915	2915	2915



### 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	603	603	603	603	589	589	589	589	563	563	563	539	539	539	517	517	517	507
1	573	558	545	533	560	547	535	524	527	517	508	508	500	493	490	484	479	470
2	543	516	495	476	531	508	488	471	491	475	461	476	463	451	462	451	441	433
3	513	478	452	430	503	471	447	427	458	437	420	445	428	413	434	419	407	399
4	485	444	414	392	475	438	411	389	427	403	385	417	397	380	407	390	376	368
5	458	413	382	359	450	408	379	357	399	373	354	390	368	350	382	363	347	339
6	433	385	353	330	425	381	351	329	373	346	326	366	342	324	359	338	322	314
7	409	360	327	304	402	356	325	304	349	322	302	343	319	300	337	315	299	291
8	388	336	304	282	381	333	303	282	328	300	280	322	297	279	317	295	278	270
9	367	315	284	262	361	313	283	262	308	280	261	303	278	260	299	276	259	252
10	349	296	265	245	343	294	264	244	290	262	243	286	261	243	282	259	242	235

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	415.5 Candela
Central Cone Intensity:	415 Candela
Beam Flux:	423.9 Lumens
Beam Angle (0-180):	73.0 Degrees
Beam Angle (90-270):	73.0 Degrees
Field Angle (0-180):	87.9 Degrees
Field Angle (90-270):	87.9 Degrees





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



Luminaire Classification System (LCS)

LCS	Zone	Lumens	Luminaire %
FL	(0-30)	159.4	31.4%
FM	(30-60)	91.3	18.0%
FH	(60-80)	2.4	0.5%
FVH	(80-90)	0.3	0.1%
BL	(0-30)	159.4	31.4%
BM	(30-60)	91.3	18.0%
BH	(60-80)	2.4	0.5%
BVH	(80-90)	0.3	0.1%
UL	(90-100)	0.0	0.0%
UH	(100-180)	0.0	0.0%
Total		506.8	100.0%
<b>BUG Rating</b>	<b>B1 U0 G0</b>		



## Attachment A

## Amended Report Documentation

[illegible]