



UL Verification Services Inc.
7036 Snowdrift Road
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-4-UF-30 (4W, 75° ULTRA FLOOD OPTIC, 3000K)

Order Number
13931356
Test Number
13931356.26

Test Date

2021-07-29

Prepared By

Josh Mitchell, Technician

Approved By

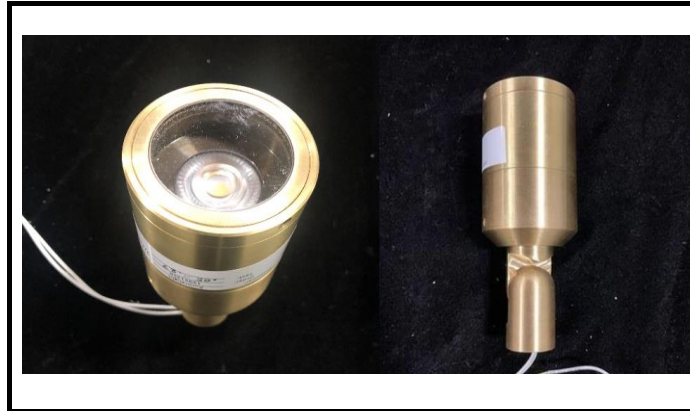
Alexa Lambert, Project Handler

The results contained in this report pertain only to the tested sample.
This report shall not be reproduced, except in full, without written approval of Underwriters Laboratories.
This report must not be used by the client to claim product certification, approval, or endorsement by
NVLAP, NIST, or any agency of the Federal Government.



Luminaire Description: Cylindrical brass body with adjustable knuckle
Lamp: One white LED
Mounting: Flood
Ballast/Driver: Integral
Note: Report extrapolated using data from Test Numbers 13931356.05, 13931356.08, and 13931356.11

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: 25.0 °C
Voltage: 12.21 VAC
Current: 0.3481 A
Power: 3.706 W
Power Factor: 0.872
Frequency: 60 Hz
Current THD: 47.8 %

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
25.0 °C	12.21 VAC	0.3481 A	3.706 W	0.872	60 Hz	47.8 %

Summary of Results

Spacing Criteria

0-180: 1.15
90-270: 1.15

Total Lumen Output:

260.1 Lumens

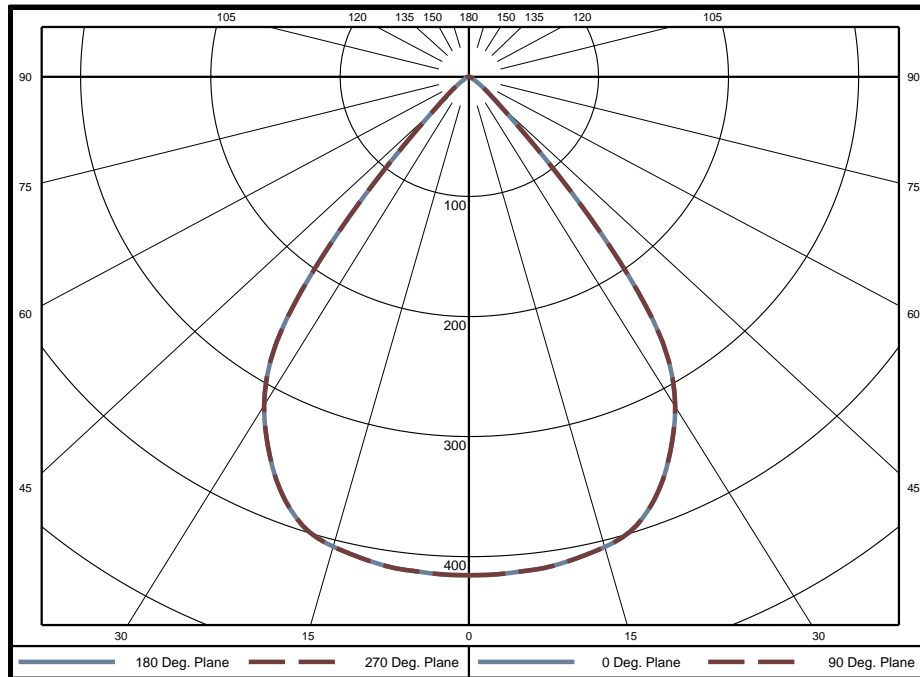
Luminaire Efficacy:

70.2 lm/w

Maximum Candela:

213 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	5.10	2.0%	60-65	0.80	0.3%	120-125	0	0.0%
5-10	15.19	5.8%	65-70	0.71	0.3%	125-130	0	0.0%
10-15	24.89	9.6%	70-75	0.59	0.2%	130-135	0	0.0%
15-20	33.82	13.0%	75-80	0.41	0.2%	135-140	0	0.0%
20-25	40.52	15.6%	80-85	0.21	0.1%	140-145	0	0.0%
25-30	44.03	16.9%	85-90	0.07	0.0%	145-150	0	0.0%
30-35	43.26	16.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	30.27	11.6%	95-100	0	0.0%	155-160	0	0.0%
40-45	11.77	4.5%	100-105	0	0.0%	160-165	0	0.0%
45-50	4.82	1.9%	105-110	0	0.0%	165-170	0	0.0%
50-55	2.48	1.0%	110-115	0	0.0%	170-175	0	0.0%
55-60	1.16	0.4%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	237	91.1%
0-60	257	98.9%
0-90	260	100.0%
90-180	0	0.0%



Candela Tabulation

Horizontal Angle (Degrees)

Vertical 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	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3	213.3
	5	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8	212.8
	10	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4	211.4
	15	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3	208.3
	20	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9	200.9
	25	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8	184.8
	30	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1	163.1
	35	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5	126.5
	40	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2
	45	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
	50	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
	55	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
	60	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	65	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
	70	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	75	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	80	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
	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
	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/m²)

Horizontal Angle (Degrees)

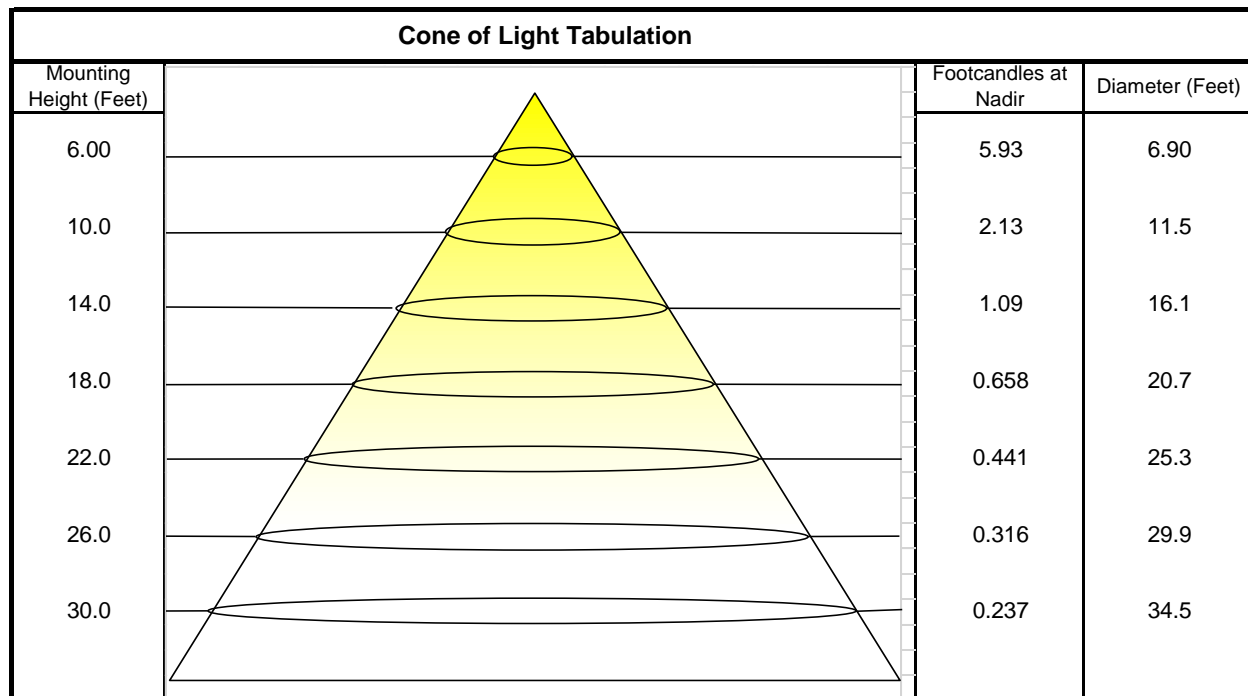
Vertical Angle (Degrees)	0	45	90
	0	119100	119100
	45	13660	13660
	55	3705	3705
	65	1998	1998
	75	2075	2075
	85	1497	1497



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	310	310	310	310	302	302	302	302	289	289	289	277	277	277	265	265	265	260
1	294	287	280	274	288	281	275	269	270	265	261	261	257	253	252	249	246	241
2	279	265	254	245	273	261	250	242	252	244	237	244	237	231	237	232	227	222
3	263	246	232	221	258	242	229	219	235	224	216	229	220	212	223	215	209	205
4	249	228	213	201	244	225	211	200	219	207	197	214	204	195	209	200	193	189
5	235	212	196	184	231	210	195	183	205	192	182	200	189	180	196	186	178	174
6	222	198	181	169	218	196	180	169	192	178	168	188	176	166	184	174	165	161
7	210	185	168	156	207	183	167	156	179	165	155	176	164	154	173	162	153	149
8	199	173	156	145	196	171	155	145	168	154	144	166	153	143	163	151	143	139
9	189	162	146	135	186	161	145	134	158	144	134	156	143	133	153	142	133	129
10	179	152	136	126	176	151	136	125	149	135	125	147	134	125	145	133	124	121

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	213.3 Candela
Central Cone Intensity:	213 Candela
Beam Flux:	217.7 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%
BUG Rating	B1 U0 G0		