



UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
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Photometric Test Report

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

Prepared For
Auroralight Inc

2742 Loker Avenue West
Carlsbad
CA, 92010
United States

Catalog Number

HPL4-3-27

Order Number

11745044

Test Number

11745044.05

Test Date

2017-05-02

Prepared By

Javier Caban, Technician

Approved By

Tiffany Hamm, Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Conical 4" copper shade with clear glass lens, cylindrical copper stem and brass base
Lamp: 64 white LEDs
Mounting: Path/Area
Ballast/Driver: Integrated

Luminaire



Luminaire Characteristics

Luminous Diameter: 3.75 in.

Summary of Results

Roadway Classification:	Type V, Short
Cutoff Classification:	Cutoff
BUG Rating:	B0 U1 G0

Test Conditions

Test Temperature:	25.6 °C
Voltage:	12.01 VAC
Current:	0.4967 A
Power:	3.349 W
Power Factor:	0.561
Frequency:	60 Hz
Current THD:	77.6 %

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	12.01 VAC	0.4967 A	3.349 W	0.561	60 Hz	77.6 %

Summary of Results

Spacing Criteria

0-180: 1.98

90-270: 1.98

Total Lumen Output:

123.1 Lumens

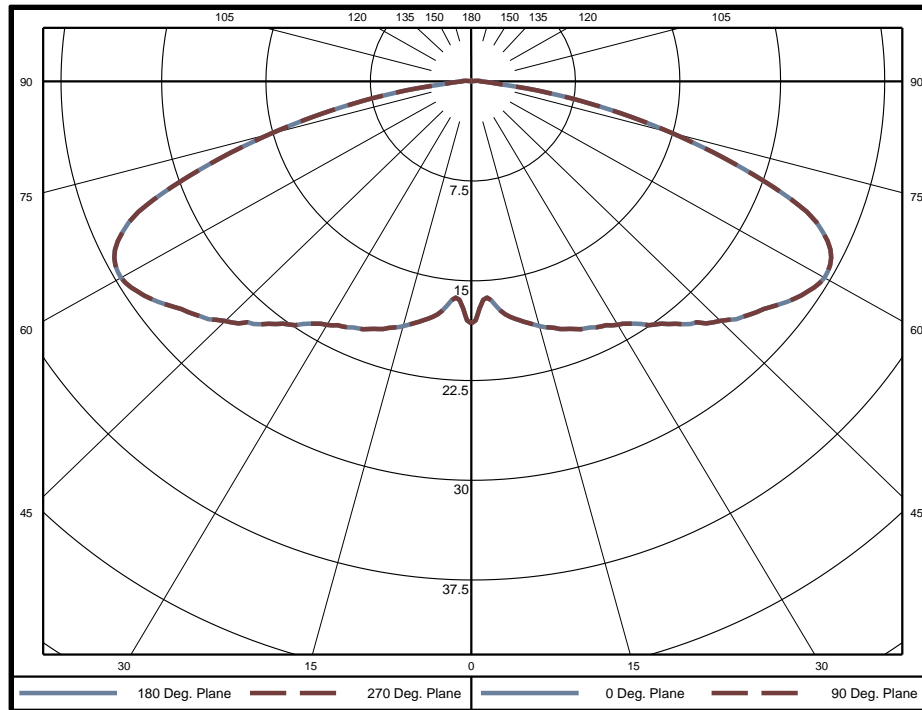
Luminaire Efficacy:

36.8 lm/w

Maximum Candela:

30 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	0.40	0.3%	60-65	14.19	11.5%	120-125	0.02	0.0%
5-10	1.26	1.0%	65-70	13.34	10.8%	125-130	0.02	0.0%
10-15	2.21	1.8%	70-75	10.01	8.1%	130-135	0.02	0.0%
15-20	3.21	2.6%	75-80	5.94	4.8%	135-140	0.01	0.0%
20-25	4.23	3.4%	80-85	2.26	1.8%	140-145	0.01	0.0%
25-30	5.26	4.3%	85-90	0.63	0.5%	145-150	0.01	0.0%
30-35	6.38	5.2%	90-95	0.34	0.3%	150-155	0.01	0.0%
35-40	7.69	6.2%	95-100	0.18	0.1%	155-160	0.01	0.0%
40-45	9.14	7.4%	100-105	0.07	0.1%	160-165	0.01	0.0%
45-50	10.63	8.6%	105-110	0.04	0.0%	165-170	0.00	0.0%
50-55	12.06	9.8%	110-115	0.03	0.0%	170-175	0.00	0.0%
55-60	13.45	10.9%	115-120	0.02	0.0%	175-180	0.00	0.0%

Zone	Lumens	% of Luminaire
0-40	31	24.9%
0-60	76	61.7%
0-90	122	99.3%
90-180	1	0.6%



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	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21	18.21
	5	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53	16.53
	10	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.13
	15	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05	19.05
	20	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83	19.83
	25	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42	20.42
	30	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14	21.14
	35	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39	22.39
	40	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85	23.85
	45	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48	25.48
	50	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99	26.99
	55	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51	28.51
	60	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51	29.51
	65	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44	28.44
	70	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26	23.26
	75	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07	15.07
	80	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41
	85	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
	90	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
	95	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	100	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
	105	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	110	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
	115	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	120	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	125	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	130	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	135	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	140	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	145	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	150	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	155	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	160	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	165	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	170	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	175	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	180	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	2555	2555
	45	5056	5056
	55	6976	6976
	65	9445	9445
	75	8174	8174
	85	2861	2861



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	146	146	146	146	143	143	143	143	136	136	136	130	130	130	125	125	125	122
1	130	123	117	111	127	120	114	109	115	110	105	110	105	102	105	102	99	96
2	115	103	93	84	112	100	91	83	96	88	81	91	85	79	87	82	77	74
3	103	87	75	65	99	85	74	65	81	71	63	77	69	62	74	67	61	57
4	92	75	62	52	89	73	61	52	70	59	51	66	57	50	63	56	49	46
5	84	65	52	43	81	64	51	42	61	50	42	58	48	41	55	47	40	37
6	76	57	45	36	74	56	44	35	54	43	35	51	42	34	49	41	34	31
7	70	51	39	30	68	50	38	30	48	37	30	46	36	29	44	35	29	26
8	65	46	34	26	63	45	34	26	43	33	26	41	32	25	40	31	25	22
9	60	42	30	23	58	41	30	23	39	29	22	38	29	22	36	28	22	20
10	56	38	27	20	54	37	27	20	36	26	20	35	26	20	33	25	20	17

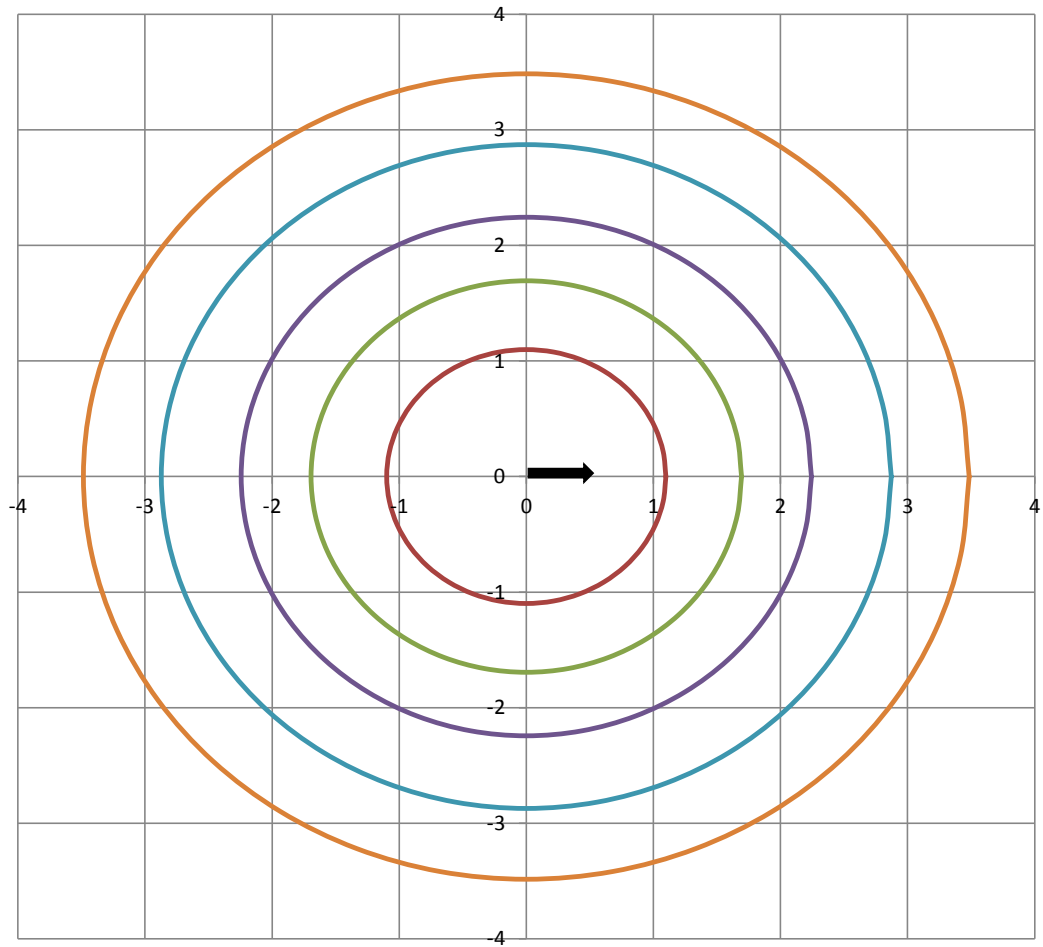
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	18.21 Candela
Central Cone Intensity:	17 Candela
Beam Flux:	118.3 Lumens
Beam Angle (0-180):	157.5 Degrees
Beam Angle (90-270):	157.5 Degrees
Field Angle (0-180):	169.8 Degrees
Field Angle (90-270):	169.8 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		1.14	7.93
6.00		0.506	11.9
8.00		0.285	15.9
10.0		0.182	19.8
12.0		0.126	23.8
14.0		0.0929	27.7
16.0		0.0711	31.7



ISOFootcandle Plot

Mounting Height - 2 Feet



Grid Lines in Units of Mounting Height

5 fc 2 fc 1 fc 0.5 fc 0.2 fc 0.1 fc



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



Luminaire Classification System (LCS)

LCS	Zone	Lumens	Luminaire %
FL	(0-30)	8.3	6.7%
FM	(30-60)	29.8	24.2%
FH	(60-80)	21.7	17.6%
FVH	(80-90)	1.5	1.2%
BL	(0-30)	8.3	6.7%
BM	(30-60)	29.8	24.2%
BH	(60-80)	21.7	17.6%
BVH	(80-90)	1.5	1.2%
UL	(90-100)	0.5	0.4%
UH	(100-180)	0.3	0.2%
Total		123.2	100.0%
BUG Rating	B0 U1 G0		