



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

Test #: L03147209

Date: 3/31/2014



NVLAP LAB CODE 200927-0

**Test Report:** L03147209

**Model Number:** ACL.100.20DEG

**Report Prepared For:** LUMENART LTD  
 3333 W. 47TH ST, CHICAGO, IL 60632

**Test:** Electrical and Photometric tests as required by the IESNA test standards.

**Standards Used:** Appropriate part or all test guidelines were used for test performed:  
*IESNA LM79: 2008* Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products  
*ANSI NEMA ANSLG C78.377: 2008* Specification of the Chromaticity of Solid State Lighting Products  
*ANSI C82.77:2002:* Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

**Description of Sample:** Client submitted the sample. Fixture catalog number is ACL.100.20DEG . Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 3/24/14

**Date of Tests:** 3/31/14 - 3/31/14

**Seasoning of Sample SSL:** No seasoning was performed in accordance with IESNA LM-79.

**Equipment List**

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	01/04/15
Xitron Power Analysis System	2503AH	MT-EL01	01/09/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/15
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/15
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

**LM-79 Test Summary**

<b>Manufacturer:</b>	LUMENART LTD
<b>Model Number:</b>	ACL.100.20DEG
<b>LAMPCAT:</b>	N/A
<b>Driver Model Number:</b>	THOMAS RESEARCH PRODUCTS VLED25W-037-C0700-D
<b>Total Lumens:</b>	2617.19
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.24
<b>Input Power (W):</b>	28.94
<b>Input Power Factor:</b>	0.99
<b>Total Harmonic Distortion @ 120V(%):</b>	9%
<b>Total Harmonic Distortion @ 277V(%):</b>	N/A
<b>Efficacy:</b>	90
<b>Color Rendering Index (CRI):</b>	81
<b>Correlated Color Temperature (K):</b>	3185
<b>Chromaticity Coordinate x:</b>	0.4241
<b>Chromaticity Coordinate y:</b>	0.3989
<b>Ambient Temperature (°F):</b>	77.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	1:30
<b>Off State Power(W):</b>	0.00

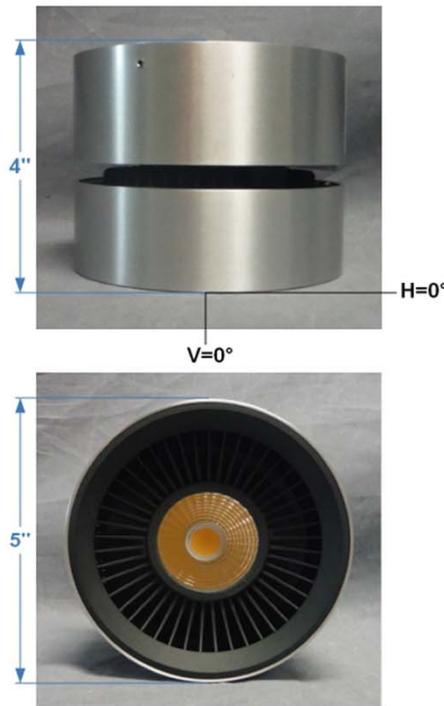
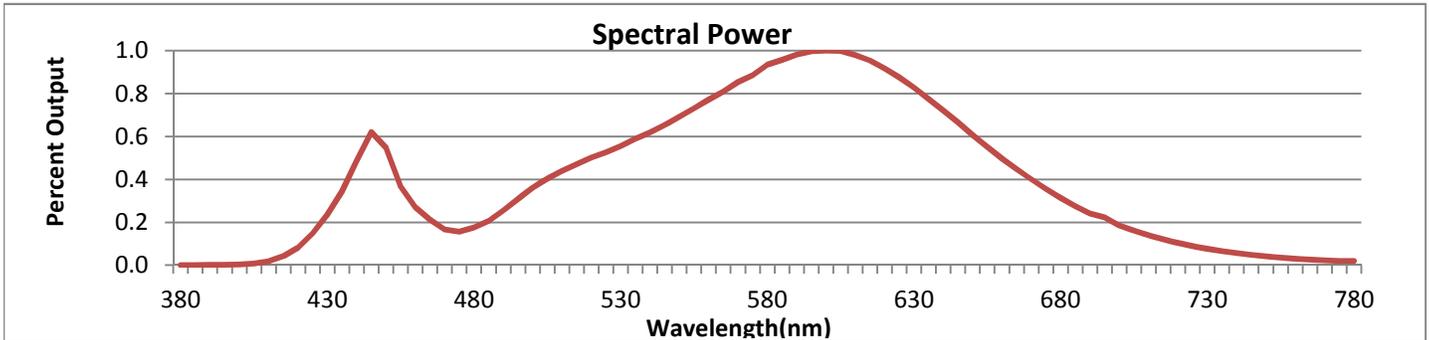


FIG. 1 LUMINAIRE

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



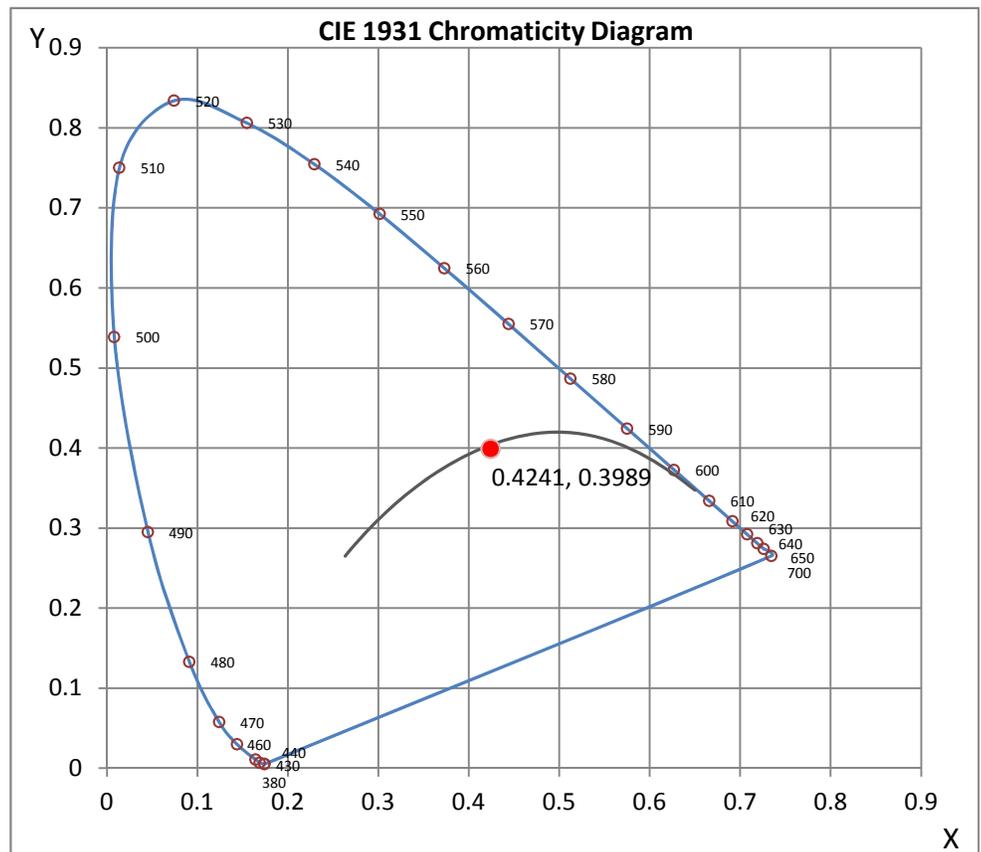
Wavelength	W/m <sup>2</sup> nm	440	0.0211	510	0.0191	580	0.0406	650	0.0264	720	0.0045
380	0.0000	450	0.0238	520	0.0218	590	0.0425	660	0.0216	730	0.0033
390	0.0001	460	0.0118	530	0.0241	600	0.0434	670	0.0174	740	0.0024
400	0.0002	470	0.0072	540	0.0268	610	0.0425	680	0.0136	750	0.0018
410	0.0008	480	0.0076	550	0.0300	620	0.0398	690	0.0105	760	0.0013
420	0.0035	490	0.0111	560	0.0335	630	0.0359	700	0.0080	770	0.0010
430	0.0102	500	0.0157	570	0.0370	640	0.0313	710	0.0060	780	0.0008

**CRI & CCT**

x	0.4241
y	0.3989
u'	0.2445
v'	0.5174
CRI	81.00
CCT	3185
Duv	-0.00015

**R Values**

R1	78.79
R2	87.37
R3	94.97
R4	80.02
R5	78.77
R6	83.33
R7	84.09
R8	60.83
R9	6.88
R10	71.24
R11	78.54
R12	68.47
R13	80.27
R14	96.97



\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

Test #: L03147209

Date: 3/31/2014



NVLAP LAB CODE 200927-0

**Test Methods**

**Photometric Measurements - Goniophotometer**

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

**Spectral Measurements - Integrating Sphere**

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

**Disclaimers:**

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Wilson Khounlavong

Test Report Released by:

Test Report Reviewed by:

Jeff Ahn  
 Engineering Manager

Steve Kang  
 Quality Assurance

\*Attached are photometric data reports. Total number of pages: 10

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



8165 E. Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L03147209.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L03147209  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 3/31/2014  
 [MANUFAC] LUMENART LTD  
 [LUMCAT] ACL.100.20DEG  
 [LUMINAIRE] 5"DIA. X 4"H. ROUND CEILING DOWNLIGHT 20DEG  
 [MORE] NO LENS  
 [BALLASTCAT] THOMAS RESEARCH PRODUCTS VLED25W-037-C0700-D  
 [BALLAST] INPUT: 100-277VAC, 0.40A, 50-60HZ. OUTPUT: 19-37VDC, 0.7A  
 [LAMPPOSITION] 0,0  
 [LAMPCAT] N/A  
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
 [\_INPUT] 120VAC, 28.94W  
 [\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2617
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	90
Total Luminaire Watts	28.94
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.50
Spacing Criterion (90-270)	0.50
Spacing Criterion (Diagonal)	0.50
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.16 ft (Diameter)
Luminous Width (90-270)	0.16 ft (Diameter)
Luminous Height	0.00 ft

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L03147209.IES**

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	48031	48031	48031
55	2797	2797	2797
65	2531	2531	2531
75	2067	2067	2067
85	0	0	0

CANDELA TABULATION

	<u>0</u>
0.0	7337
1.0	7329
3.0	7173
5.0	6810
7.0	6301
9.0	5682
11.0	5001
13.0	4259
15.0	3486
17.0	2735
19.5	2057
22.5	1569
25.5	1245
29.0	1019
33.0	758
37.5	433
42.5	120
47.5	7
55.0	3
65.0	2
75.0	1
85.0	0
90.0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L03147209.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	1516.36	N.A.	57.90
0-30	2117.24	N.A.	80.90
0-40	2487.5	N.A.	95.00
0-60	2612.73	N.A.	99.80
0-80	2616.65	N.A.	100.00
0-90	2617.19	N.A.	100.00
10-90	2114.55	N.A.	80.80
20-40	971.13	N.A.	37.10
20-50	1093.17	N.A.	41.80
40-70	127.61	N.A.	4.90
60-80	3.92	N.A.	0.10
70-80	1.54	N.A.	0.10
80-90	0.54	N.A.	0.00
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	2617.19	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	502.63
10-20	1013.73
20-30	600.88
30-40	370.25
40-50	122.03
50-60	3.20
60-70	2.37
70-80	1.54
80-90	0.54
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

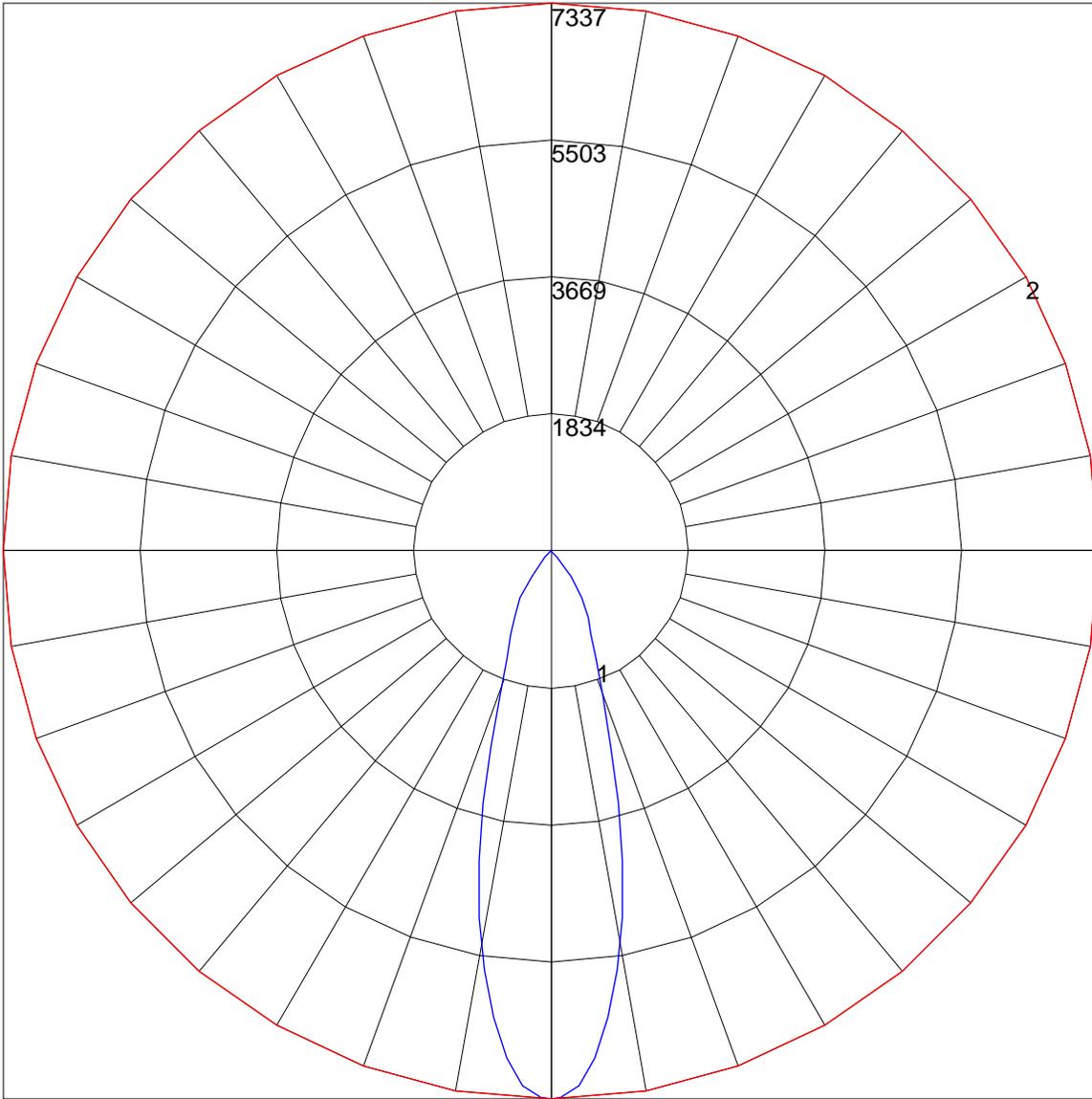
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L03147209.IES**

**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	109	107	112	110	108	106	106	104	103	102	101	99	98	97	97	95
2	109	105	101	98	107	103	100	97	100	98	95	97	95	93	95	93	91	90
3	105	99	95	91	103	98	94	91	95	92	89	93	90	88	91	88	86	85
4	100	94	89	85	99	93	88	85	91	87	84	89	85	83	87	84	82	80
5	96	89	84	80	95	88	83	80	86	82	79	85	81	78	83	80	78	76
6	92	85	79	76	91	84	79	75	82	78	75	81	77	74	80	76	74	73
7	89	80	75	72	87	80	75	71	79	74	71	78	74	71	76	73	70	69
8	85	77	72	68	84	76	71	68	75	71	68	74	70	67	73	70	67	66
9	82	73	68	65	81	73	68	65	72	68	65	71	67	64	71	67	64	63
10	79	70	65	62	78	70	65	62	69	65	62	69	64	62	68	64	61	60

POLAR GRAPH



Maximum Candela = 7337 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)