



FOR THE SCOPE OF
ACCREDITATION UNDER NVLAP LAB
CODE 100402-0.

REPORT

3933 US ROUTE 11, CORTLAND, NEW YORK 13045

Project No. G102255690

Date: August 24, 2015

REPORT NO. 102255690CRT-003

TEST OF ONE DECORATIVE LUMINAIRE

MODEL NO. VLC-29L350NW-G1-3

LED MODEL NO. LUMILEDS LUXEON T

DRIVER MODEL NO. PHILIPS ADVANCE 929000704913 (350MA)

RENDERED TO:

PHILIPS LIGHTING
640 CURE-BOIVIN
BOISBRIAND, QC, J7G 2A7

TESTS: Electrical and Photometric tests as required to the IESNA test standard.

STATEMENT OF LIMITATION: 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.

AUTHORIZATION The testing performed was authorized by signed quote number Qu-00635731.

STANDARDS USED:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI NEMA ANSLG C78.377: 2011: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number VLC-29L350NW-G1-3. The sample was received by Intertek on August 17, 2015 in undamaged condition and one sample was tested as received. The sample designation was CRT1508171449-001 with driver CRT1508171149-009B.

DATE OF TESTS: August 21, 2015 through August 24, 2015.

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SUMMARY:

MODEL NO. VLC-29L350NW-G1-3
DESCRIPTION: DECORATIVE LUMINAIRE

Criteria	Integrating Sphere	Goniophotometer
Light Output (Lumens)	3482	3461
Total Power (W)	33.06	32.96
Lumen Efficacy (Lm/W)	105.3	105.0
Power Factor ()	0.986	0.987

Criteria	Results
Current ATHD (%)	10.47
Correlated Color Temp. (CCT-K)	3772
Color Rendering Index (CRI - Ra)	72.7
CRI - R9	-23.4
DUV ()	0.002
Chromaticity Coordinate (x)	0.393
Chromaticity Coordinate (y)	0.389
Chromaticity Coordinate (u')	0.228
Chromaticity Coordinate (v')	0.509

EQUIPMENT LIST

Equipment Used	Model No.	Control No.	Last Cal.	Cal. Due
LSI High Speed Mirror Goniometer	6440	---	8/10/2015	9/10/2015
Elgar AC Power Supply	CW1251	---	VBV	VBV
Sorenson DC Power Supply	XG 150-10	---	VBV	VBV
Yokogawa Power Analyzer	WT210	E464	04/20/15	04/20/16
ExTech Hygro Thermometer	445703	T1357	12/10/14	12/10/15
Fisher Scientific Stopwatch	14-649-9	N1405	08/25/14	08/25/15
M-D Building Products Digital Level	Smart Tool	L112	03/25/15	03/25/16
NIST Luminous Intensity Standard Source	NBS10322	N1427	12/12/14	12/12/15
NIST Luminous Intensity Standard Source	NBS10215	N1432	12/12/14	12/12/15
NIST Luminous Intensity Standard Source	H754	N1433	12/12/14	12/12/15
NIST Luminous Flux Standard Source	NBS10428	N1424	12/17/14	12/17/15
Elgar AC Power Supply	CW1251	---	VBV	VBV
Sorenson DC Power Supply	XFR 150-8	---	VBV	VBV
Yokogawa Power Analyzer	WT1600	E474	03/06/15	03/06/16
Extech Hygro Thermometer	445703	T1366	12/10/14	12/10/15
Fisher Scientific Stopwatch	14-649-9	N1315	12/10/14	12/10/15
Fluke Thermometer	53II	T1318	03/18/15	03/18/16
3M Integrating Sphere Spectrometer System	CDS 1100	---	08/03/15	09/03/15
Pearson Current Monitor	411	A214	08/29/14	08/29/15
NIST Spectral Intensity Standard Source	RF1482	N1422	12/17/14	100 Hrs of use
NIST Luminous Flux Standard Source	150-14	N1423	12/17/14	12/17/15
NIST Luminous Flux Standard Source	NBS10428	N1424	12/17/14	12/17/15
NIST Luminous Flux Standard Source	BS8830	N1425	12/17/14	12/17/15



TEST METHODS:

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model CDS 1100 CCD Array Spectroradiometer and two meter or ten foot sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

Photometric and Electrical measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

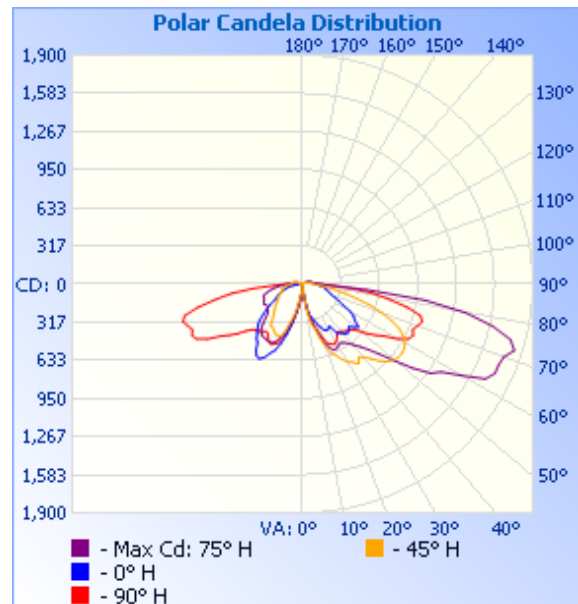
RESULTS:

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Control No.	Base Orientation	Input Voltage (VAC)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Light Output (Lumens)	Lumen Efficacy (lm/W)
CRT1508171449-001	Base Down	120.1	278.0	32.96	0.987	3461.0	105.0

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	30	45	60	90
0	2	2	2	2	2
5	20	14	11	14	22
10	179	189	200	193	165
15	300	403	158	494	390
20	361	536	617	644	519
25	394	580	682	700	558
30	405	602	715	711	550
35	434	583	760	779	526
40	532	662	791	945	576
45	489	676	880	1057	656
50	528	673	930	1158	730
55	501	700	949	1313	865
60	469	662	959	1393	954
65	370	536	915	1415	1040
70	282	411	800	1371	1054
75	184	251	573	1313	1119
80	155	165	341	968	880
85	132	126	187	403	466
90	103	94	100	125	158
95	89	79	68	77	81
100	74	60	56	60	59
105	60	48	49	51	50
110	47	41	44	46	43
115	35	37	41	43	38
120	31	35	39	41	34
125	29	34	37	39	32
130	28	33	36	38	30
135	27	32	35	37	28
140	26	31	34	36	26
145	24	28	31	30	23
150	22	25	27	26	21
155	19	21	23	22	18
160	15	18	22	17	13
165	9	8	8	8	7
170	4	4	4	4	3
175	2	2	2	2	2
180	2	2	2	2	2

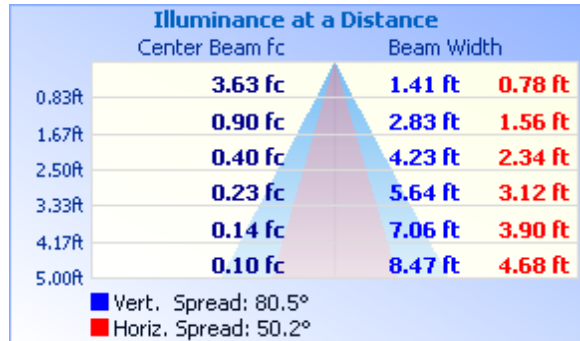


RESULTS:

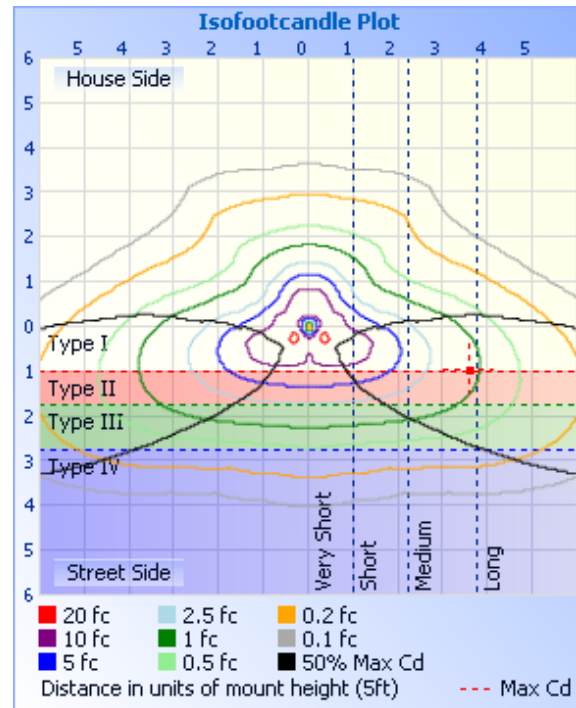
Illumination Plots

Mounting Height: 5 Feet

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	359.5	10.4
0-40	720.1	20.8
0-60	1770.4	51.2
60-90	1428.7	41.3
0-90	3199.1	92.4
90-180	262.0	7.6
0-180	3461.2	100.0

Zonal Lumens and Percentages at 25°C

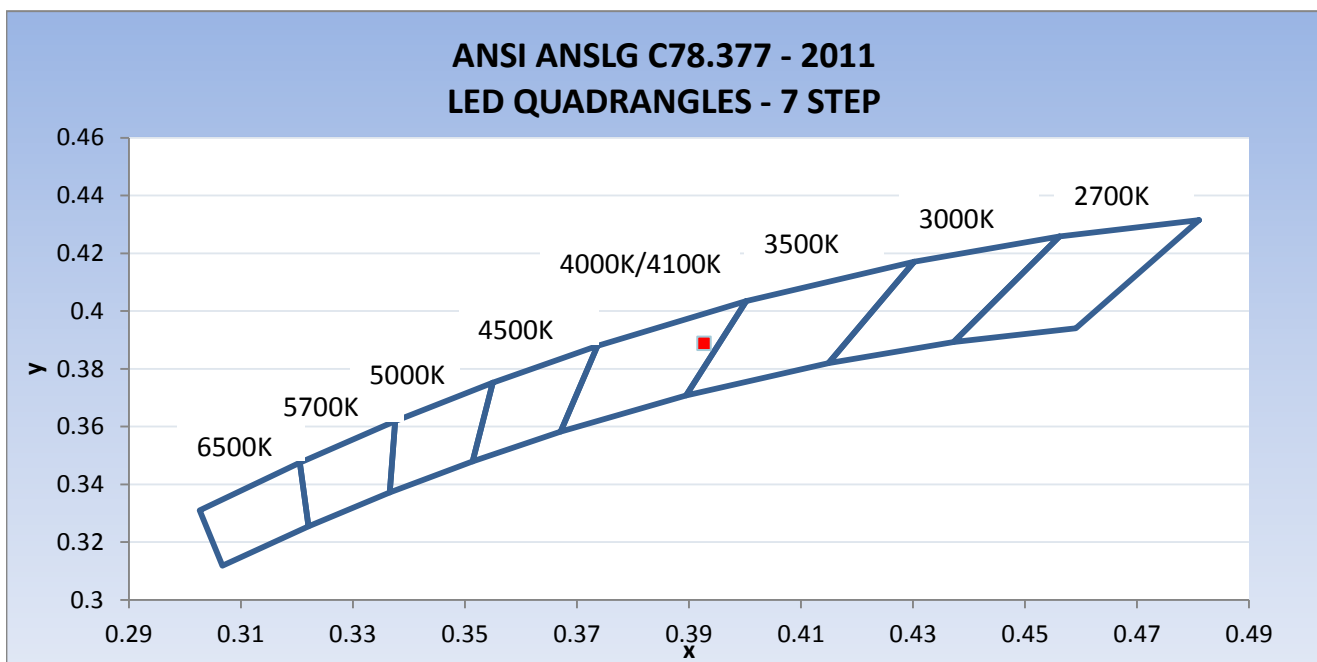
Zone	Lumens	% Luminaire
0-10	5.8	0.2
10-20	101.0	2.9
20-30	252.7	7.3
30-40	360.6	10.4
40-50	477.8	13.8
50-60	572.4	16.5
60-70	611.7	17.7
70-80	550.9	15.9
80-90	266.1	7.7
90-100	88.9	2.6
100-110	56.2	1.6
110-120	38.4	1.1
120-130	28.9	0.8
130-140	22.8	0.7
140-150	15.6	0.5
150-160	8.6	0.2
160-170	2.5	0.1
170-180	0.3	0.0

RESULTS:

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Sphere Method

Intertek Control No.	Base Orientation	Input Voltage (VAC)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Current ATHD (%)
CRT1508171449-001	Base Down	120.0	279.4	33.06	0.986	10.47
Light Output (Lumens)	Lumen Efficacy (lm/W)	Correlated Color Temperature - CCT (K)		CRI -Ra	CRI -R9	DUV ()
3482	105.3	3772		72.7	-23.4	0.002
CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')		CIE 76' Chromaticity Coordinate (v')		
0.393	0.389	0.228		0.509		

ANSI C78.377 SSL Chromaticity (2011 Version)

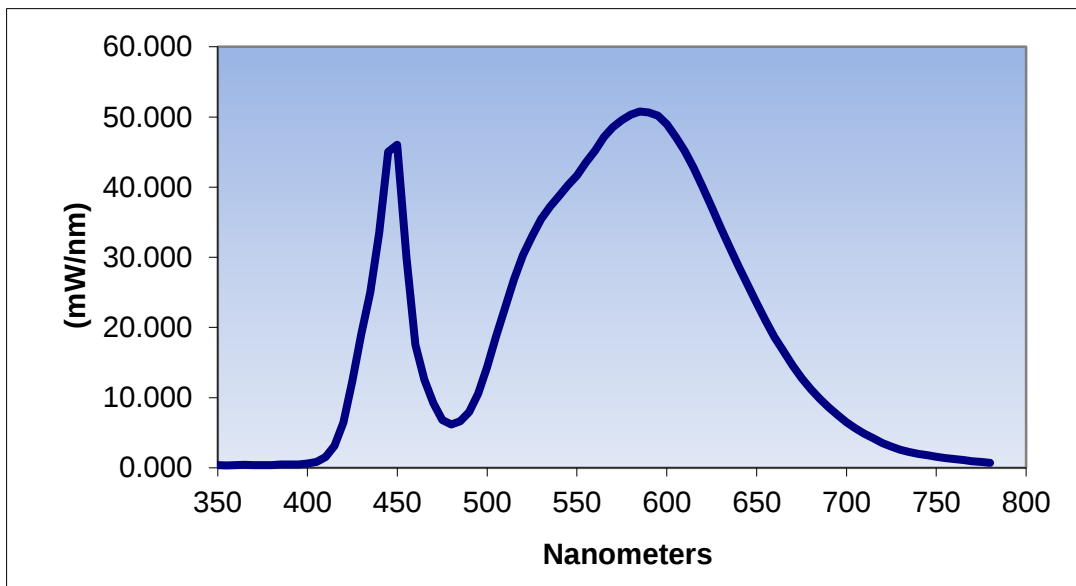


RESULTS:

Spectral Distribution Over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.393	460	17.51	570	48.55	680	11.24
355	0.341	465	12.54	575	49.56	685	9.868
360	0.362	470	9.219	580	50.34	690	8.613
365	0.442	475	6.813	585	50.78	695	7.530
370	0.397	480	6.157	590	50.63	700	6.494
375	0.394	485	6.611	595	50.21	705	5.645
380	0.379	490	7.956	600	48.95	710	4.862
385	0.453	495	10.54	605	47.13	715	4.192
390	0.450	500	14.32	610	45.11	720	3.543
395	0.472	505	18.71	615	42.70	725	3.016
400	0.584	510	22.78	620	39.96	730	2.565
405	0.835	515	26.84	625	37.15	735	2.245
410	1.499	520	30.32	630	34.24	740	1.988
415	3.108	525	33.06	635	31.47	745	1.781
420	6.462	530	35.45	640	28.72	750	1.566
425	12.39	535	37.24	645	26.11	755	1.397
430	19.08	540	38.72	650	23.50	760	1.246
435	24.99	545	40.31	655	21.00	765	1.092
440	33.55	550	41.67	660	18.61	770	0.941
445	45.03	555	43.52	665	16.58	775	0.826
450	46.04	560	45.18	670	14.57	780	0.709
455	30.02	565	47.12	675	12.81		

Spectral Data Over Visible Wavelengths



PRODUCT PICTURE:



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:



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Lighting Division

Report Reviewed By:



Ryan Siddon
Engineer
Lighting Division

Attachments: IES File - CRT1508171449-001-009B