



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

REPORT

3933 US ROUTE 11, CORTLAND, NEW YORK 13045

Project No. G102516003

Date: March 24, 2016

REPORT NO. 102516003CRT-001

TEST OF ONE WALL WASH TRACK LUMINAIRE

MODEL NO. LX2047-T1913-9830
LED MODEL NO. XICATO XTM19953013CCA
DRIVER MODEL NO. MAGTECH M18-U24-0700-XP

RENDERED TO:

LIGHTING SERVICES INC.
2 HOLT DR
STONY POINT, NY 10980-1920

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-00682330.

STANDARDS USED:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI NEMA ANSLG C78.377: 2015: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number LX2047-T1913-9830. The sample was received by Intertek on March 14, 2016 in undamaged condition and one sample was tested as received. The sample designation was CRT1603141140-001-1.

DATE OF TESTS: March 18, 2016 through March 21, 2016.

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SUMMARY:

MODEL NO. LX2047-T1913-9830
DESCRIPTION: Wall Wash Track Luminaire

Criteria	Integrating Sphere	Goniophotometer
Light Output (Lumens)	1105.1	1116.0
Total Power (W)	18.65	18.54
Lumen Efficacy (Lm/W)	59.3	60.2
Power Factor ()	0.990	0.991

Criteria	Results
Current ATHD (%)	7.93
Correlated Color Temp. (CCT-K)	2966
Color Rendering Index (CRI - Ra)	97.8
CRI - R9	91.3
DUV ()	0.000
Chromaticity Coordinate (x)	0.439
Chromaticity Coordinate (y)	0.405
Chromaticity Coordinate (u')	0.252
Chromaticity Coordinate (v')	0.522

EQUIPMENT LIST

Equipment Used	Model No.	Control No.	Last Cal.	Cal. Due
LSI High Speed Mirror Goniometer	6440	---	3/3/2016	4/3/2016
Elgar AC Power Supply	CW1251	---	VBU	VBU
Sorenson DC Power Supply	XG 150-10	---	VBU	VBU
Yokogawa Power Analyzer	WT210	E464	4/20/2015	4/20/2016
ExTech Hygro Thermometer	445703	T1359	2/4/2016	2/4/2017
M-D Building Products Digital Level	Smart Tool	L112	3/25/2015	3/25/2016
NIST Luminous Intensity Standard Source	NBS10322	N1427	12/12/2014	12/12/2016
NIST Luminous Intensity Standard Source	NBS10215	N1432	12/12/2014	12/12/2016
NIST Luminous Intensity Standard Source	960629-3	N1428	12/12/2014	12/12/2016
NIST Luminous Flux Standard Source	NBS10428	N1424	12/17/2014	12/17/2016
Elgar AC Power Supply	CW1251	---	VBU	VBU
Sorenson DC Power Supply	XFR 150-8	---	VBU	VBU
Yokogawa Power Analyzer	WT1600	ZE475	6/9/2015	6/9/2016
Fisher Scientific Stopwatch	14-649-9	N1316	1/15/2016	1/15/2017
Fluke Thermometer	52	T801	11/18/2015	11/18/2016
3M Integrating Sphere Spectrometer System	CDS 1100	---	3/2/2016	4/2/2016
Pearson Current Monitor	411	A203	6/26/2015	6/15/2016
Secondary Spectral Intensity Standard Source	BS5186	RF5186	1/27/2016	1/27/2017
Secondary Luminous Flux Standard Source	BS3616	--	1/27/2016	1/27/2017
Secondary Luminous Flux Standard Source	BS4116	--	1/27/2016	1/27/2017
Secondary Luminous Flux Standard Source	6836	--	1/27/2016	1/27/2017



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.



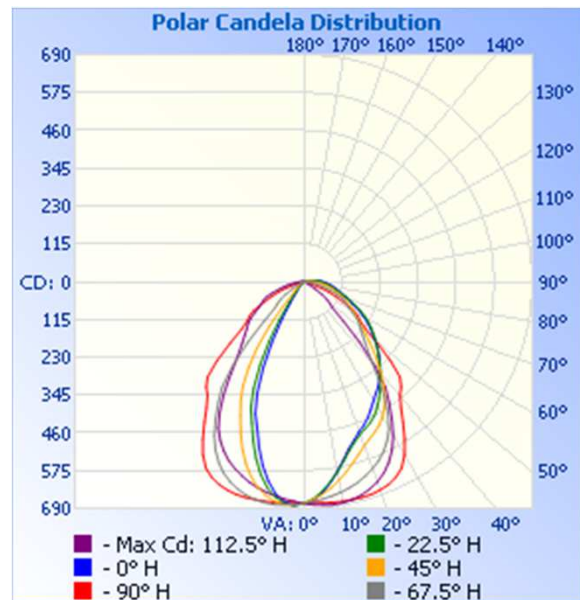
RESULTS:

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)
CRT1603141140-001-1	Base Up	120.04	155.8	18.54	0.991	1116.0	60.2

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	675	675	675	675	675
5	645	639	649	664	675
10	585	587	613	650	678
15	526	531	571	632	680
20	487	496	532	606	674
25	457	474	506	569	657
30	420	443	475	515	608
35	391	402	427	422	523
40	358	359	362	322	452
45	322	320	298	262	411
50	283	284	241	225	288
55	246	249	200	197	209
60	206	215	170	156	173
65	163	175	144	133	107
70	134	135	118	102	57
75	110	105	92	64	14
80	91	85	72	38	5
85	73	68	51	18	3
90	57	50	32	9	0
95	41	32	17	4	0
100	23	16	10	2	0
105	11	8	4	0	0
110	7	3	1	0	0
115	3	0	0	0	0



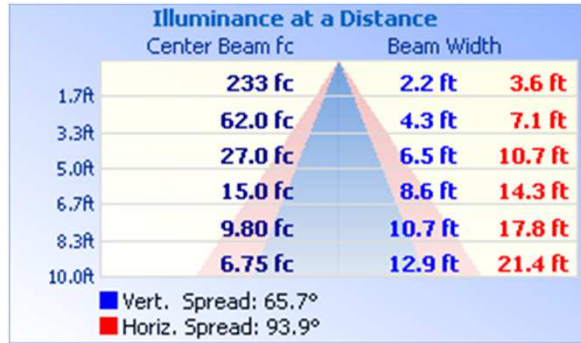


RESULTS:

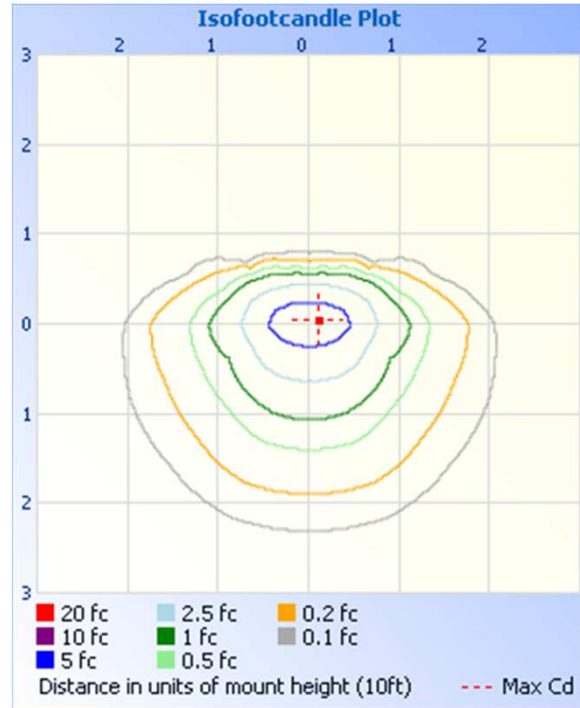
Illumination Plots

Mounting Height: 10ft

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	458.0	41.0
0-40	673.4	60.3
0-60	952.3	85.3
60-90	150.5	13.5
0-90	1102.8	98.8
90-180	13.3	1.2
0-180	1116.0	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	62.6	5.6
10-20	167.7	15.0
20-30	227.7	20.4
30-40	215.4	19.3
40-50	161.1	14.4
50-60	117.8	10.6
60-70	80.8	7.2
70-80	45.3	4.1
80-90	24.3	2.2
90-100	10.3	0.9
100-110	2.6	0.2
110-120	0.3	0.0



RESULTS:

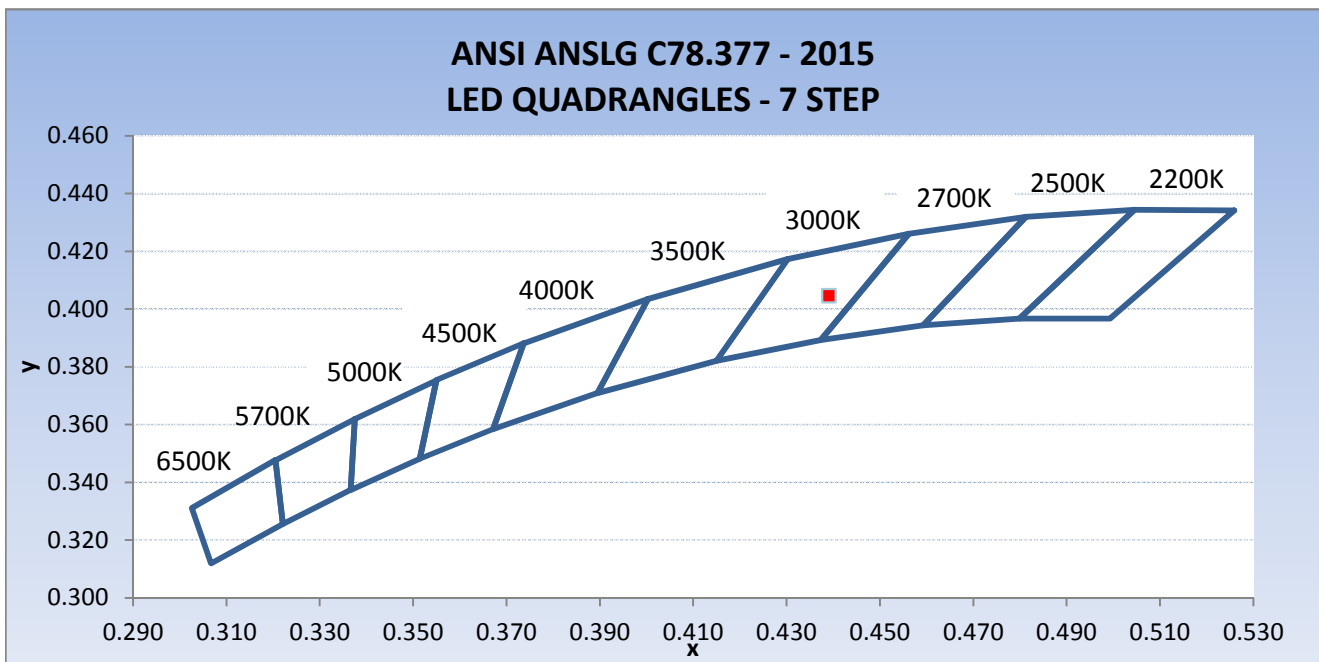
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Sphere Method

Intertek Control No.	Base Orientation	Input Voltage (VAC)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Current ATHD (%)
CRT1603141140-001-1	Base Up	120.02	157.0	18.65	0.990	7.93

Light Output (Lumens)	Lumen Efficacy (lm/W)	Correlated Color Temperature - CCT (K)	CRI -Ra	CRI -R9	DUV ()
1105.1	59.3	2966	97.8	91.3	0.000

CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
0.439	0.405	0.252	0.522

ANSI C78.377 SSL Chromaticity (2015 Version)



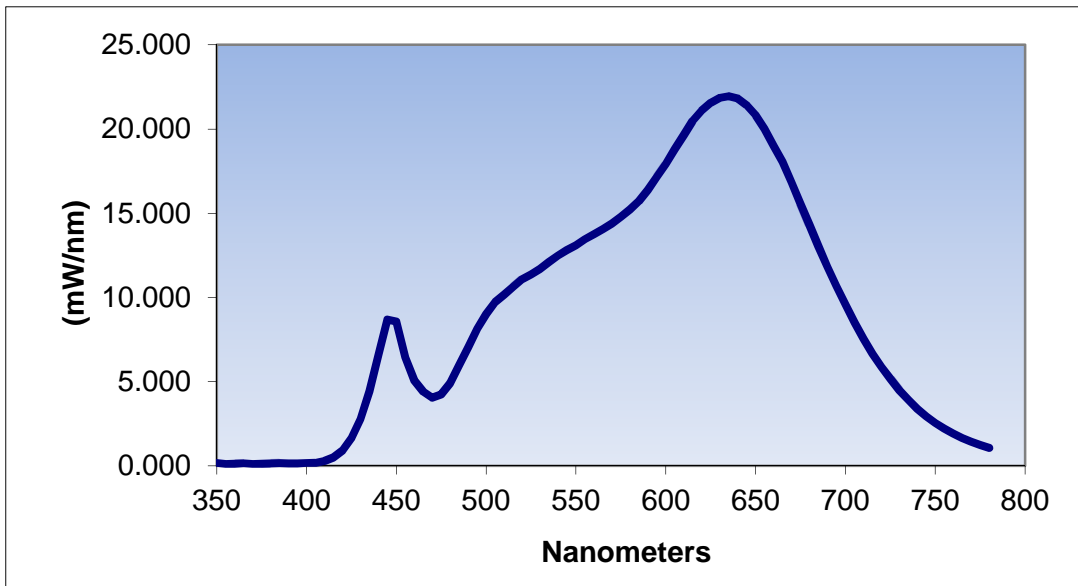


RESULTS:

Spectral Distribution Over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.158	460	5.072	570	14.392	680	14.299
355	0.119	465	4.413	575	14.777	685	13.043
360	0.116	470	4.049	580	15.216	690	11.818
365	0.141	475	4.236	585	15.711	695	10.668
370	0.118	480	4.908	590	16.371	700	9.553
375	0.115	485	5.968	595	17.164	705	8.515
380	0.136	490	7.050	600	17.911	710	7.551
385	0.152	495	8.129	605	18.788	715	6.653
390	0.130	500	8.998	610	19.639	720	5.872
395	0.132	505	9.736	615	20.481	725	5.172
400	0.161	510	10.172	620	21.095	730	4.478
405	0.174	515	10.614	625	21.546	735	3.907
410	0.277	520	11.084	630	21.857	740	3.381
415	0.490	525	11.356	635	21.958	745	2.929
420	0.917	530	11.689	640	21.818	750	2.544
425	1.645	535	12.094	645	21.413	755	2.197
430	2.767	540	12.479	650	20.831	760	1.910
435	4.424	545	12.807	655	20.013	765	1.650
440	6.565	550	13.097	660	18.996	770	1.425
445	8.679	555	13.447	665	18.053	775	1.222
450	8.565	560	13.749	670	16.843	780	1.057
455	6.431	565	14.067	675	15.573		

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:



Ryan Siddon
Engineer
Lighting Division

Report Reviewed By:



Jeffrey Davis
Engineering Supervisor
Lighting Division

Attachments: IES File - CRT1603141140-001-1