



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

REPORT

3933 US ROUTE 11, CORTLAND, NEW YORK 13045

Project No. G102612445

Date: June 6, 2016
Revision Date: June 14, 2016

REPORT NO. 102612445CRT-001

TEST OF ONE WALL WASH TRACK LUMINAIRE

MODEL NO. LPW8

RENDERED TO:

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

REVISION NOTE: Report was revised to correct the distribution base orientation which provided a 90° Tilt

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-00696233.

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 LPW8. The sample was received by Intertek on May 18, 2016 in undamaged condition and one sample was tested as received. The sample designation was CRT1605181138-001.

DATE OF TESTS: June 3, 2016 through June 6, 2016.

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SUMMARY:

MODEL NO. LPW8
DESCRIPTION: Wall Wash Track Luminaire

Criteria	Integrating Sphere	Goniophotometer
Light Output (Lumens)	1194.2	1187.5
Total Power (W)	34.76	34.79
Lumen Efficacy (Lm/W)	34.4	34.1
Power Factor ()	0.993	0.993

Criteria	Results
Current ATHD (%)	9.62
Correlated Color Temp. (CCT-K)	3042
Color Rendering Index (CRI - Ra)	94.7
CRI - R9	75.1
DUV ()	0.001
Chromaticity Coordinate (x)	0.433
Chromaticity Coordinate (y)	0.401
Chromaticity Coordinate (u')	0.249
Chromaticity Coordinate (v')	0.520

EQUIPMENT LIST

Equipment Used	Model No.	Control No.	Last Cal.	Cal. Due
LSI High Speed Mirror Goniometer	6440	---	6/2/2016	7/2/2016
Elgar AC Power Supply	CW1251	---	VBU	VBU
Sorenson DC Power Supply	XG 150-10	---	VBU	VBU
Yokogawa Power Analyzer	WT210	E464	5/2/2016	5/2/2017
Omega Thermometer	DPI8-C24	M263	5/2/2016	5/2/2017
M-D Building Products Digital Level	Smart Tool	L112	4/8/2016	4/8/2017
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
2M Integrating Sphere Spectrometer System	CDS 1100	N308	5/9/2016	6/9/2016
Yokogawa Power Analyzer	WT1600	E536	12/18/2015	12/18/2016
Fluke Temperature Meter	53II	D588	5/6/2016	5/6/2017
Extech Hygro-thermometer	445715	T1550	1/8/2016	1/8/2017
Elgar AC Power Supply	CW1251	--	VBU	VBU
Secondary Spectral Flux Standard Source	BS5186	RF5186	1/27/2016	1/27/2017
Secondary Luminous Flux Standard Source	6836	--	1/27/2016	1/27/2017
Secondary Luminous Flux Standard Source	BS4116	--	1/27/2016	1/27/2017
Secondary Luminous Flux Standard Source	BS3616	--	1/27/2016	1/27/2017
Sorenson DC Power Supply	XG 150-10	--	VBU	VBU



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.



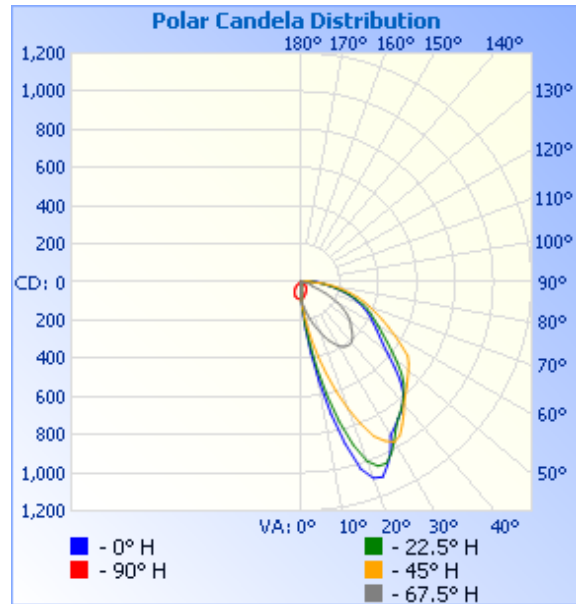
RESULTS:

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)
CRT1605181138-001	Horizontal	120.02	292.1	34.79	0.993	1187.5	34.1

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	94	94	94	94	94
5	248	227	183	130	85
10	529	457	315	173	77
15	877	756	496	222	68
20	1093	998	704	274	60
25	1060	1048	892	339	52
30	927	964	968	386	47
35	876	876	914	410	41
40	822	822	832	407	35
45	726	753	776	374	29
50	589	648	727	334	23
55	496	542	675	286	17
60	435	462	562	219	11
65	380	400	464	136	5
70	319	338	378	59	2
75	252	259	301	49	2
80	183	186	218	37	1
85	119	121	136	23	0
90	82	62	54	8	0
95	44	34	38	6	0
100	12	10	22	4	0
105	4	6	7	2	0
110	3	3	3	0	0
115	2	2	2	0	0
120	1	2	2	0	0
125	1	2	0	0	0
130	2	2	0	0	0

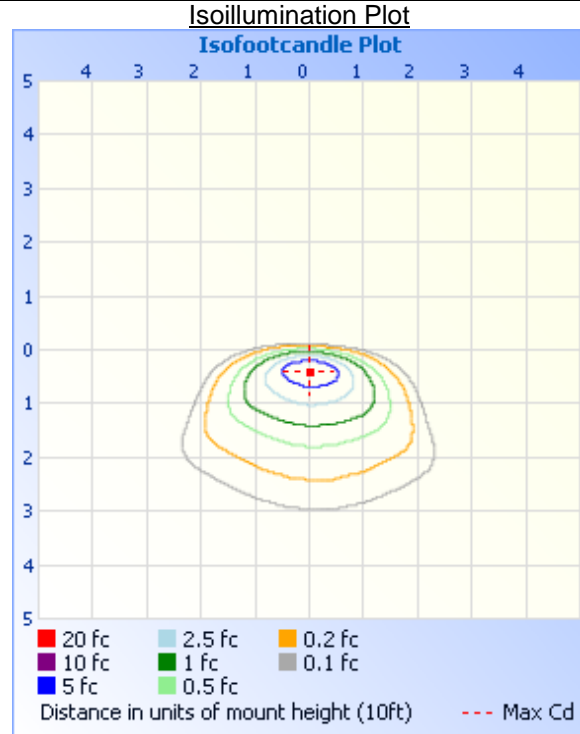
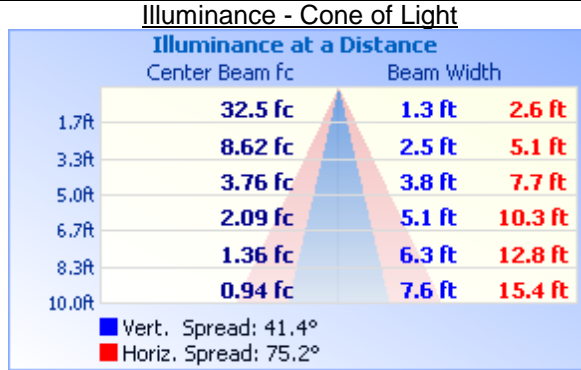




RESULTS:

Illumination Plots

Mounting Height: 10ft



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	253.9	21.4
0-40	464.7	39.1
0-60	880.7	74.2
60-90	288.3	24.3
0-90	1169.0	98.4
90-180	18.5	1.6
0-180	1187.5	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	12.8	1.1
10-20	75.4	6.3
20-30	165.7	13.9
30-40	210.8	17.8
40-50	221.3	18.6
50-60	194.7	16.4
60-70	145.6	12.3
70-80	95.9	8.1
80-90	46.9	3.9
90-100	14.3	1.2
100-110	2.9	0.2
110-120	0.8	0.1
120-130	0.4	0.0
130-140	0.1	0.0



RESULTS:

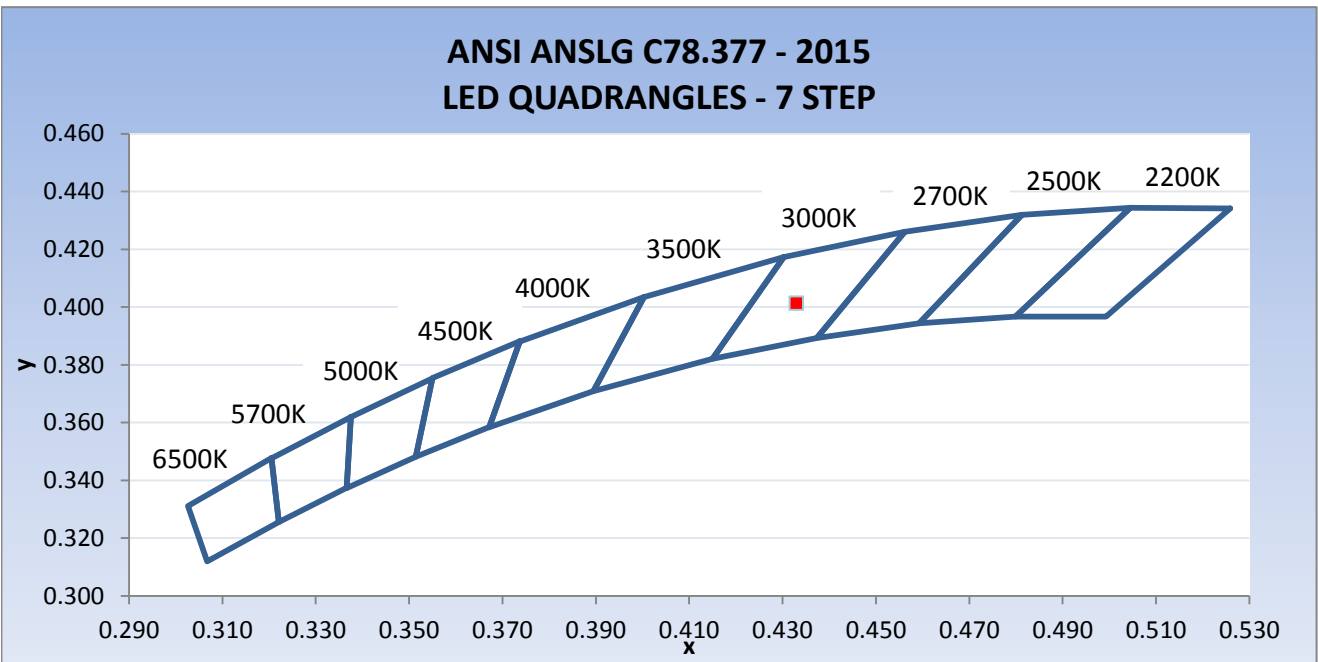
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Sphere Method

Intertek Control No.	Base Orientation	Input Voltage (VAC)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Current ATHD (%)
CRT1605181138-001	Horizontal	120.05	291.5	34.76	0.993	9.62

Light Output (Lumens)	Lumen Efficacy (lm/W)	Correlated Color Temperature - CCT (K)	CRI -Ra	CRI -R9	DUV ()
1194.2	34.4	3042	94.7	75.1	0.001

CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
0.433	0.401	0.249	0.520

ANSI C78.377 SSL Chromaticity (2015 Version)



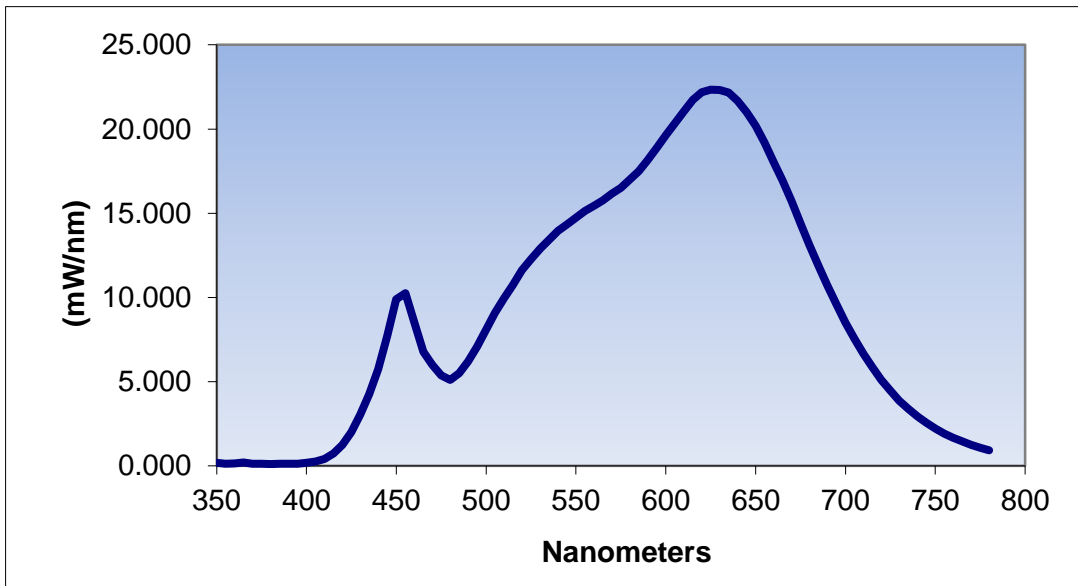


RESULTS:

Spectral Distribution Over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.172	460	8.502	570	16.153	680	13.085
355	0.118	465	6.780	575	16.495	685	11.858
360	0.137	470	5.990	580	16.989	690	10.680
365	0.195	475	5.363	585	17.497	695	9.583
370	0.110	480	5.105	590	18.160	700	8.510
375	0.118	485	5.496	595	18.899	705	7.550
380	0.105	490	6.195	600	19.638	710	6.656
385	0.121	495	7.083	605	20.337	715	5.854
390	0.121	500	8.082	610	21.055	720	5.090
395	0.126	505	9.086	615	21.733	725	4.469
400	0.171	510	9.955	620	22.182	730	3.873
405	0.248	515	10.744	625	22.345	735	3.383
410	0.402	520	11.620	630	22.320	740	2.939
415	0.721	525	12.281	635	22.161	745	2.545
420	1.240	530	12.886	640	21.681	750	2.202
425	2.010	535	13.417	645	21.016	755	1.914
430	3.052	540	13.952	650	20.214	760	1.659
435	4.269	545	14.343	655	19.195	765	1.441
440	5.740	550	14.732	660	18.054	770	1.239
445	7.709	555	15.144	665	16.923	775	1.077
450	9.893	560	15.433	670	15.704	780	0.922
455	10.248	565	15.765	675	14.372		

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
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Lighting Division

Report Reviewed By:



Jeffrey Davis
Engineering Supervisor
Lighting Division

Attachments: IES File - CRT1605181138-001