

Lighting Services Inc

TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

BPM-C0618-8030W-00-TE120B

PROJECT NUMBER

G103906489

REPORT NUMBER

103906489CRT-001

ISSUE DATE

April 22, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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TEST REPORT**REPORT NO.: 103906489CRT-001****REPORT DATE: April 22, 2019**

TEST OF (1) LED TRACK SPOT LIGHT - WIDE FOCUS

MODEL NO. BPM-C0618-8030W-00-TE120B

RENDERED TO:

LIGHTING SERVICES INC
2 HOLT DRIVE
STONY POINT, NY 10980**STATEMENT OF LIMITATION**

NVLAP Lab Code 100402-0. 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-00970760-0.

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

SAMPLE INFORMATION

CONTROL NO.	MODEL/SERIAL NO.	DESCRIPTION	TYPE	RECEIVED
CRT1904111510-001-1	BPM-C0618-8030W-00-TE120B	LED Track Spot Light - Wide Focus	Production	4/11/2019

DATE OF TESTS

April 16, 2019 through April 16, 2019.

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SUMMARY

MODEL NO:	BPM-C0618-8030W-00-TE120B
DESCRIPTION:	LED Track Spot Light - Wide Focus
LED MODEL NO:	Cree CXB1310
DRIVER MODEL NO:	Magtech MD22

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	408.6	421.9
Input Power (W) @ 120 (VAC)	19.58	19.39
Lumen Efficacy (lm/W)	20.9	21.8
Input Power Factor () @ 120 (VAC)	0.962	0.993

CRITERIA	RESULTS
Correlated Color Temperature (K)	3029
Color Rendering Index - Ra ()	81.4
Color Rendering - R9 ()	2.7
DUV ()	0.0021
Chromaticity Coordinate (x)	0.438
Chromaticity Coordinate (y)	0.410
Chromaticity Coordinate (u')	0.249
Chromaticity Coordinate (v')	0.524
Input Current ATHD (%) @ 120 (VAC)	27.9

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	CAL DUE DATE	DATE USED
LSI High Speed Mirror Goniometer	6440	---	5/5/2019	4/16/2019
Elgar AC Power Supply	CW1251	---	VBU	4/16/2019
Sorenson DC Power Supply	XG 150-10	---	VBU	4/16/2019
Yokogawa Power Analyzer	WT210	E464	5/3/2019	4/16/2019
Omega Thermometer	DPi8-C24	M263	5/3/2019	4/16/2019
M-D Building Products Digital Level	Smart Tool	L112	4/21/2019	4/16/2019
NIST Luminous Intensity Standard Source	NBS10322	N1427	2/11/2021	4/16/2019
NIST Luminous Intensity Standard Source	NBS10332	N1435	2/11/2021	4/16/2019
NIST Luminous Intensity Standard Source	NBS10265	N1437	2/11/2021	4/16/2019
NIST Luminous Flux Standard Source	NBS10428	N1424	1/3/2021	4/16/2019
Elgar AC Power Supply	CW1251	---	VBU	4/16/2019
Sorenson DC Power Supply	XFR 150-8	---	VBU	4/16/2019
Yokogawa Power Analyzer	WT1600	E440	9/24/2019	4/16/2019
Fluke Thermometer	53 II	N1324	3/15/2020	4/16/2019
Fluke Multimeter	87V	D590	6/1/2019	4/16/2019
3M Integrating Sphere Spectrometer System	CDS 1100	---	5/1/2019	4/16/2019
Fisher Scientific Stopwatch	14-649-9	N1132	3/15/2020	4/16/2019
Secondary Spectral Intensity Standard Source	BS5186	RF5186	11/14/2019	4/16/2019
Secondary Luminous Flux Standard Source	BS3616	--	11/14/2019	4/16/2019
Secondary Luminous Flux Standard Source	BS4116	--	11/14/2019	4/16/2019
Secondary Luminous Flux Standard Source	6836	--	11/14/2019	4/16/2019

TEST REPORT**REPORT NO.: 103906489CRT-001****REPORT DATE: April 22, 2019****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 Spectroradiometer and integrating sphere were used to measure light output, correlated color temperature, chromaticity coordinates, color rendering index, and the spectral distribution 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-spectroradiometer system is traceable to the National Institute of Standards and Technology.

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD

A Type C Mirror Goniometer was used to measure the intensity (candela) 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.

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

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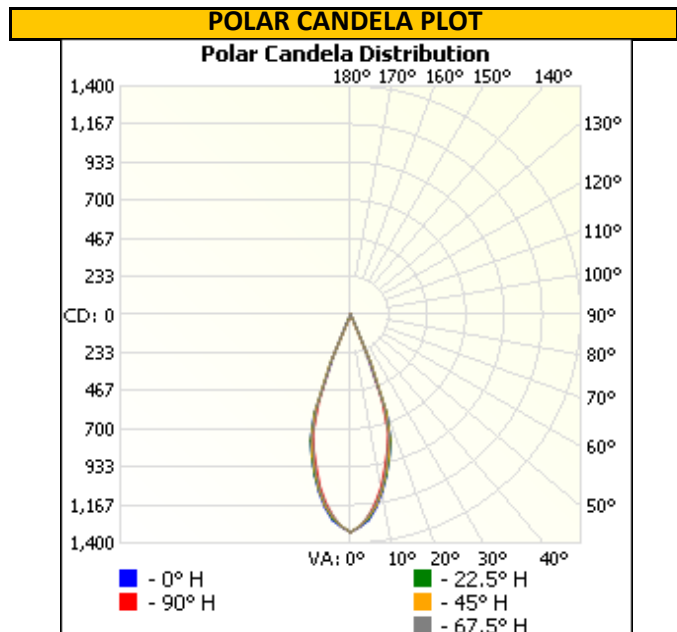
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR ()	LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)
CRT1904111510-001-1	Base Up	120.06	162.8	19.39	0.993	421.9	21.8

INTENSITY SUMMARY - CANDELA

Angle	0	22.5	45	67.5	90
0	1332	1332	1332	1332	1332
5	1264	1257	1245	1237	1238
10	1105	1098	1093	1082	1070
15	908	907	896	873	862
20	646	638	624	594	564
25	57	32	12	6	6
30	1	1	1	1	1
35	0	0	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0
55	0	0	0	0	0
60	0	0	0	0	0
65	0	0	0	0	0
70	0	0	0	0	0
75	0	0	0	0	0
80	0	0	0	0	0
85	0	0	0	0	0
90	0	0	0	0	0



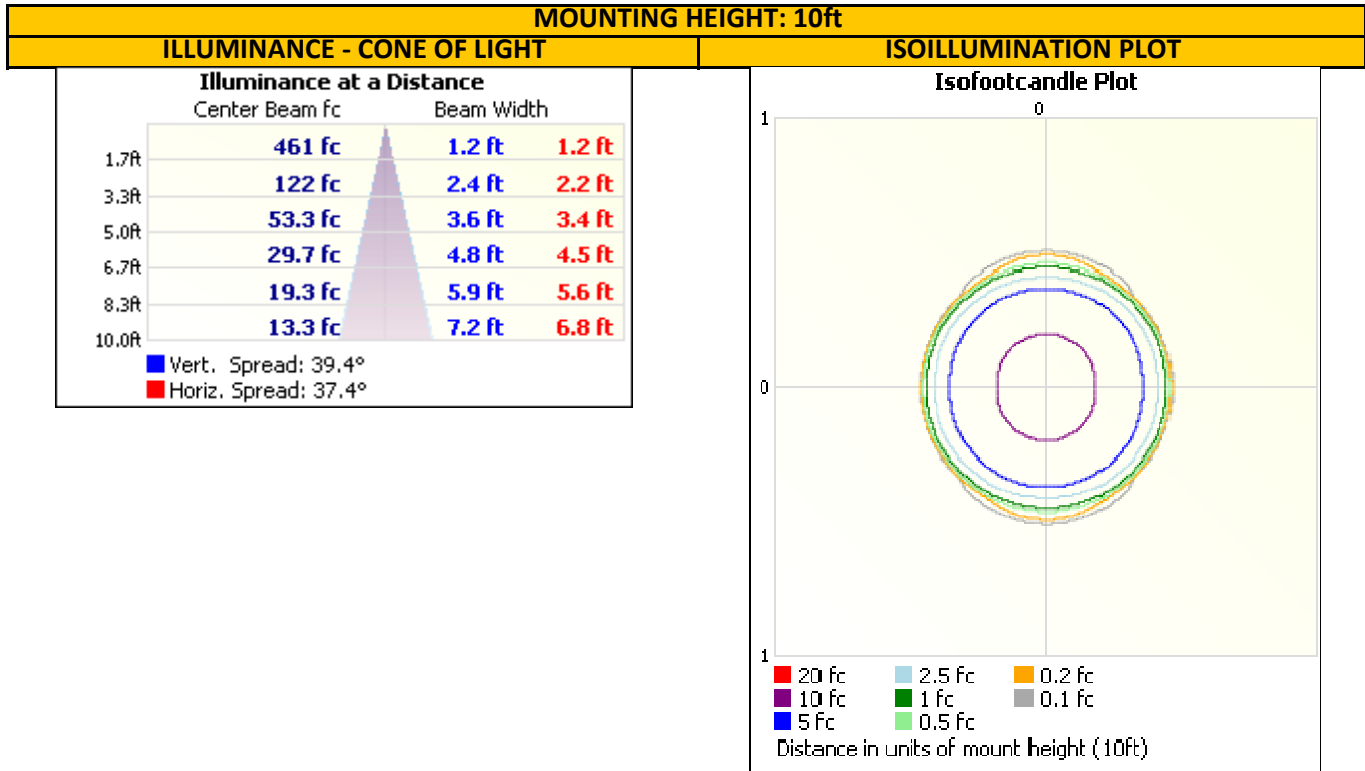
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	421.8	100.0
0-40	421.9	100.0
0-60	421.9	100.0
60-90	0.0	0.0
0-90	421.9	100.0
90-180	0.0	0.0
0-180	421.9	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	113.8	27.0
10-20	242.6	57.5
20-30	65.3	15.5
30-40	0.1	0.0
40-50	0.0	0.0
50-60	0.0	0.0
60-70	0.0	0.0
70-80	0.0	0.0
80-90	0.0	0.0

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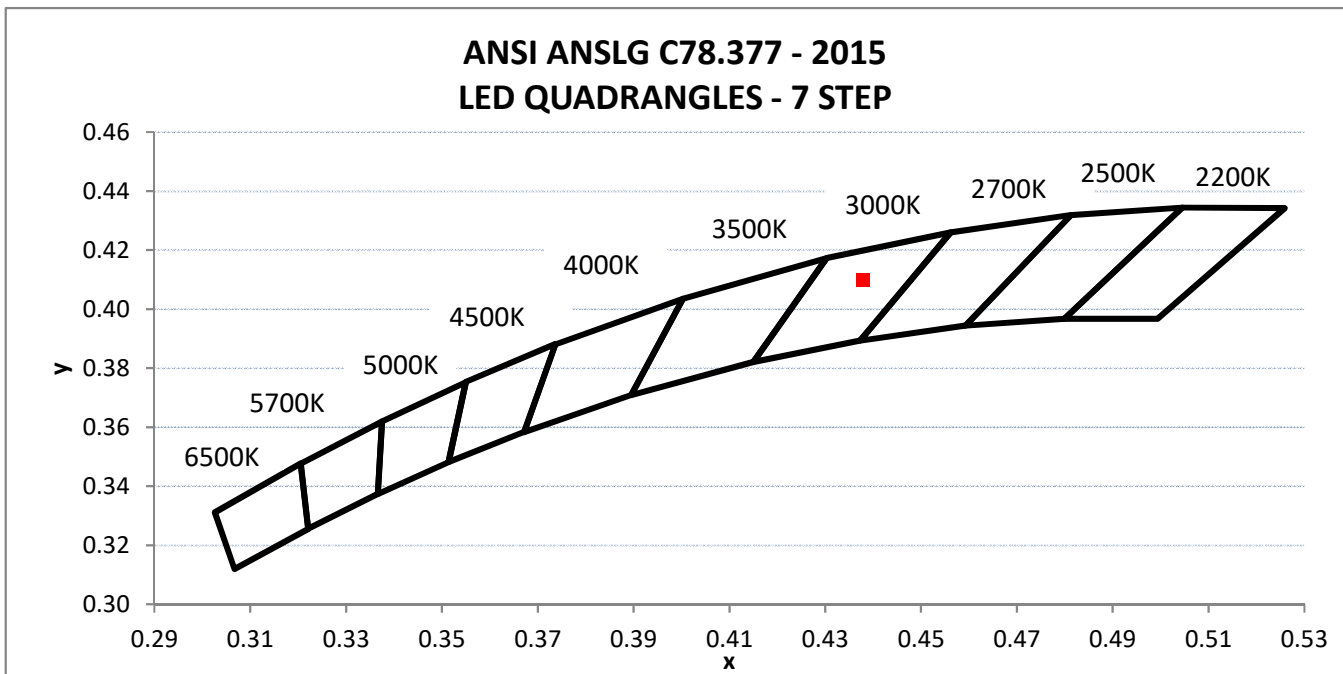
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR ()	INPUT CURRENT ATHD (%)
CRT1904111510-001-1	Base Up	120.01	169.6	19.58	0.962	27.91

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra ()	CRI - R9 ()	DUV ()
408.6	20.9	3029	81.4	2.7	0.0021

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.438	0.410	0.249	0.524



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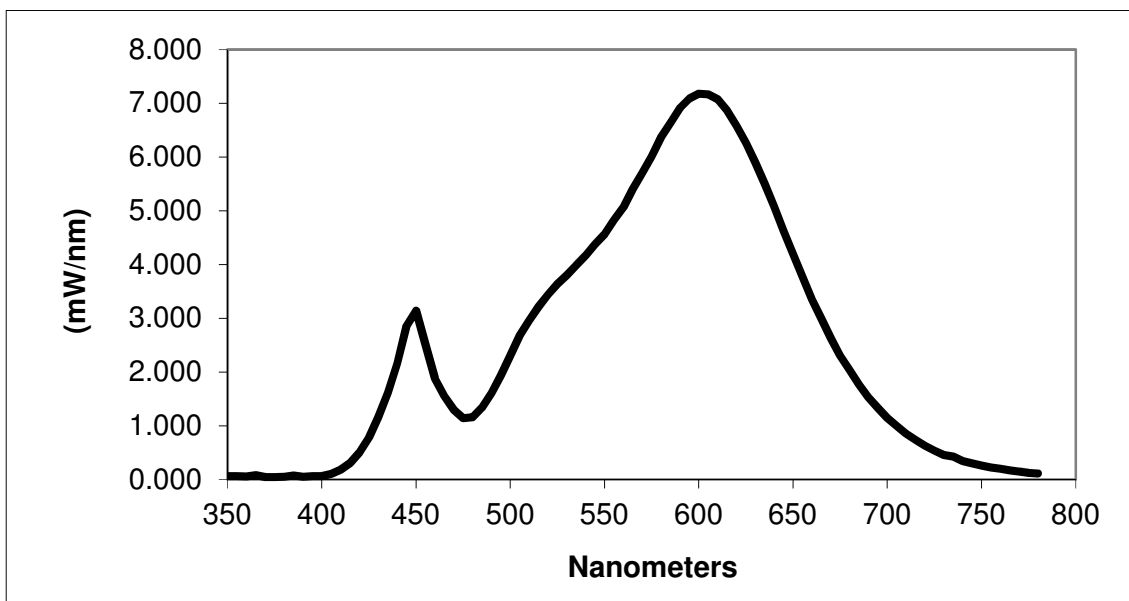
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.064	460	1.883	570	5.707	680	2.033
355	0.063	465	1.560	575	6.010	685	1.765
360	0.062	470	1.295	580	6.375	690	1.537
365	0.083	475	1.140	585	6.638	695	1.335
370	0.046	480	1.160	590	6.918	700	1.146
375	0.048	485	1.337	595	7.090	705	0.997
380	0.055	490	1.610	600	7.178	710	0.854
385	0.076	495	1.941	605	7.169	715	0.736
390	0.050	500	2.305	610	7.076	720	0.627
395	0.062	505	2.683	615	6.865	725	0.536
400	0.066	510	2.958	620	6.584	730	0.458
405	0.103	515	3.219	625	6.261	735	0.429
410	0.181	520	3.441	630	5.897	740	0.342
415	0.307	525	3.642	635	5.497	745	0.300
420	0.503	530	3.804	640	5.074	750	0.261
425	0.784	535	3.989	645	4.633	755	0.228
430	1.168	540	4.168	650	4.196	760	0.199
435	1.618	545	4.373	655	3.781	765	0.174
440	2.161	550	4.568	660	3.353	770	0.150
445	2.854	555	4.827	665	2.998	775	0.127
450	3.142	560	5.067	670	2.633	780	0.111
455	2.516	565	5.405	675	2.310		

*Without correction of sample absorption.



End Of Test Results

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PICTURES



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:

Report Reviewed By:

Gerald Gray
Associate Engineer
Lighting Division

Jacki Swiernik
Staff Engineer
Lighting Division

Attachments: .IES File

REVISION HISTORY

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY	REVISION NOTE
None				