

# Lighting Services Inc

## TEST REPORT

### SCOPE OF WORK

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

### MODEL NUMBER

BPM-C0618-8030N-00-TE120B

### PROJECT NUMBER

G103906489

### REPORT NUMBER

103906489CRT-004

### ISSUE DATE

April 29, 2019

### REVISION DATE

None

### DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**TEST REPORT****REPORT NO.: 103906489CRT-004****REPORT DATE: April 29, 2019**

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

MODEL NO. BPM-C0618-8030N-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
CRT1904111510-001-2	BPM-C0618-8030N-00-TE120B	LED Track Spot Light - Tight Focus	Production	4/11/2019

**DATE OF TESTS**

April 17, 2019 through April 29, 2019.

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SUMMARY

<b>MODEL NO:</b>	BPM-C0618-8030N-00-TE120B
<b>DESCRIPTION:</b>	LED Track Spot Light - Tight Focus
<b>LED MODEL NO:</b>	Cree CXB1310
<b>DRIVER MODEL NO:</b>	Magtech MD22

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	459.1	467.5
Input Power (W) @ 120 (VAC)	19.56	19.52
Lumen Efficacy (lm/W)	23.5	24.0
Input Power Factor ( ) @ 120 (VAC)	0.962	0.993

CRITERIA	RESULTS
Correlated Color Temperature (K)	3033
Color Rendering Index - Ra ( )	81.1
Color Rendering - R9 ( )	1.3
DUV ( )	0.0025
Chromaticity Coordinate (x)	0.438
Chromaticity Coordinate (y)	0.411
Chromaticity Coordinate (u')	0.248
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	4/29/2019
Elgar AC Power Supply	CW1251	---	VBU	4/29/2019
Sorenson DC Power Supply	XG 150-10	---	VBU	4/29/2019
Yokogawa Power Analyzer	WT210	E464	5/3/2019	4/29/2019
Omega Thermometer	DPi8-C24	M263	5/3/2019	4/29/2019
M-D Building Products Digital Level	Smart Tool	L112	4/21/2019	4/29/2019
NIST Luminous Intensity Standard Source	NBS10322	N1427	2/11/2021	4/29/2019
NIST Luminous Intensity Standard Source	NBS10332	N1435	2/11/2021	4/29/2019
NIST Luminous Intensity Standard Source	NBS10265	N1437	2/11/2021	4/29/2019
NIST Luminous Flux Standard Source	NBS10428	N1424	1/3/2021	4/29/2019
Elgar AC Power Supply	CW1251	---	VBU	4/17/2019
Sorenson DC Power Supply	XFR 150-8	---	VBU	4/17/2019
Yokogawa Power Analyzer	WT1600	E440	9/24/2019	4/17/2019
Fluke Thermometer	53 II	N1324	3/15/2020	4/17/2019
Fluke Multimeter	87V	D590	6/1/2019	4/17/2019
3M Integrating Sphere Spectrometer System	CDS 1100	---	5/1/2019	4/17/2019
Fisher Scientific Stopwatch	14-649-9	N1132	3/15/2020	4/17/2019
Secondary Spectral Intensity Standard Source	BS5186	RF5186	11/14/2019	4/17/2019
Secondary Luminous Flux Standard Source	BS3616	--	11/14/2019	4/17/2019
Secondary Luminous Flux Standard Source	BS4116	--	11/14/2019	4/17/2019
Secondary Luminous Flux Standard Source	6836	--	11/14/2019	4/17/2019

**TEST REPORT****REPORT NO.: 103906489CRT-004****REPORT DATE: April 29, 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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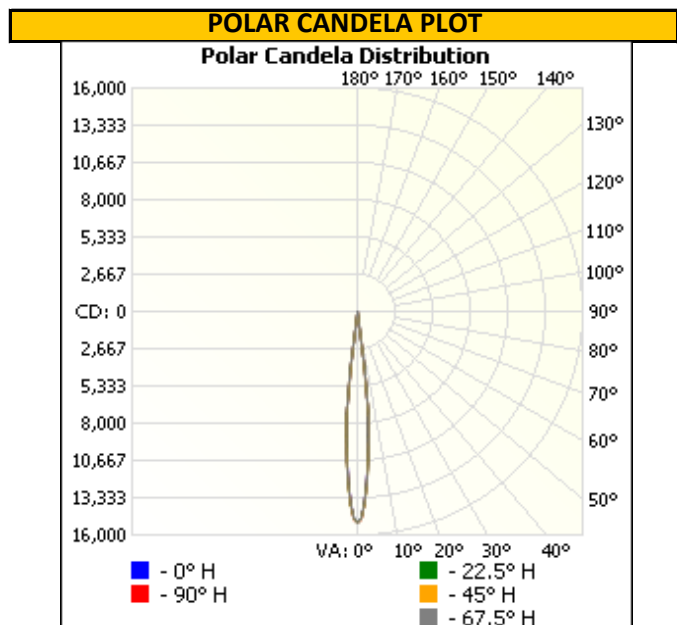
RESULTS OF TESTS

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)
CRT1904111510-001-2	Base Up	120.07	163.7	19.52	0.993	467.5	24.0

INTENSITY SUMMARY - CANDELA

Angle	0	22.5	45	67.5	90
0	15129	15129	15129	15129	15129
5	8811	8976	9082	9152	8971
10	15	16	15	14	14
15	5	6	5	5	5
20	5	5	5	5	5
25	4	3	4	3	3
30	2	1	3	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



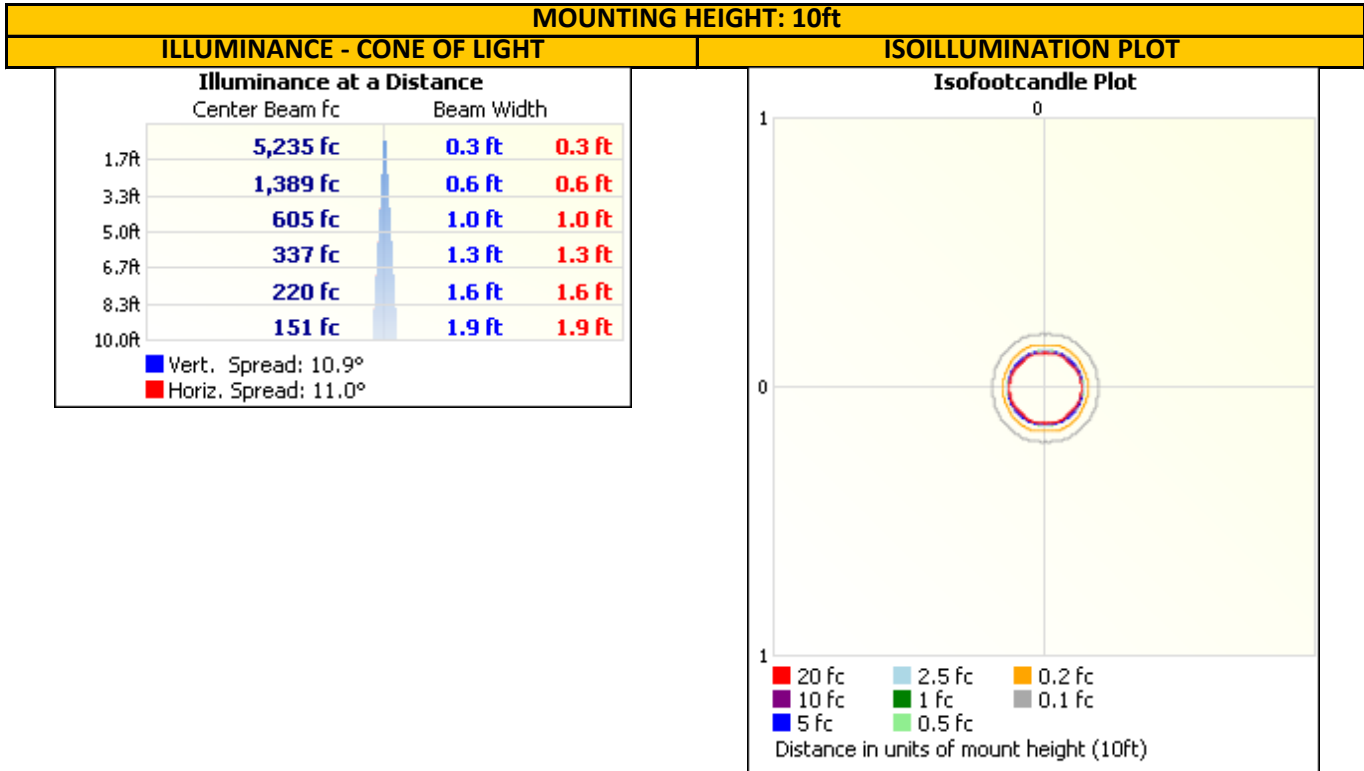
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PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)



**ZONAL LUMEN SUMMARY AND PERCENTAGES**

ZONE	LUMENS	% LUMINAIRE
0-30	467.4	100.0
0-40	467.5	100.0
0-60	467.5	100.0
60-90	0.0	0.0
0-90	467.5	100.0
90-180	0.0	0.0
0-180	467.5	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	464.0	99.2
10-20	1.8	0.4
20-30	1.6	0.3
30-40	0.2	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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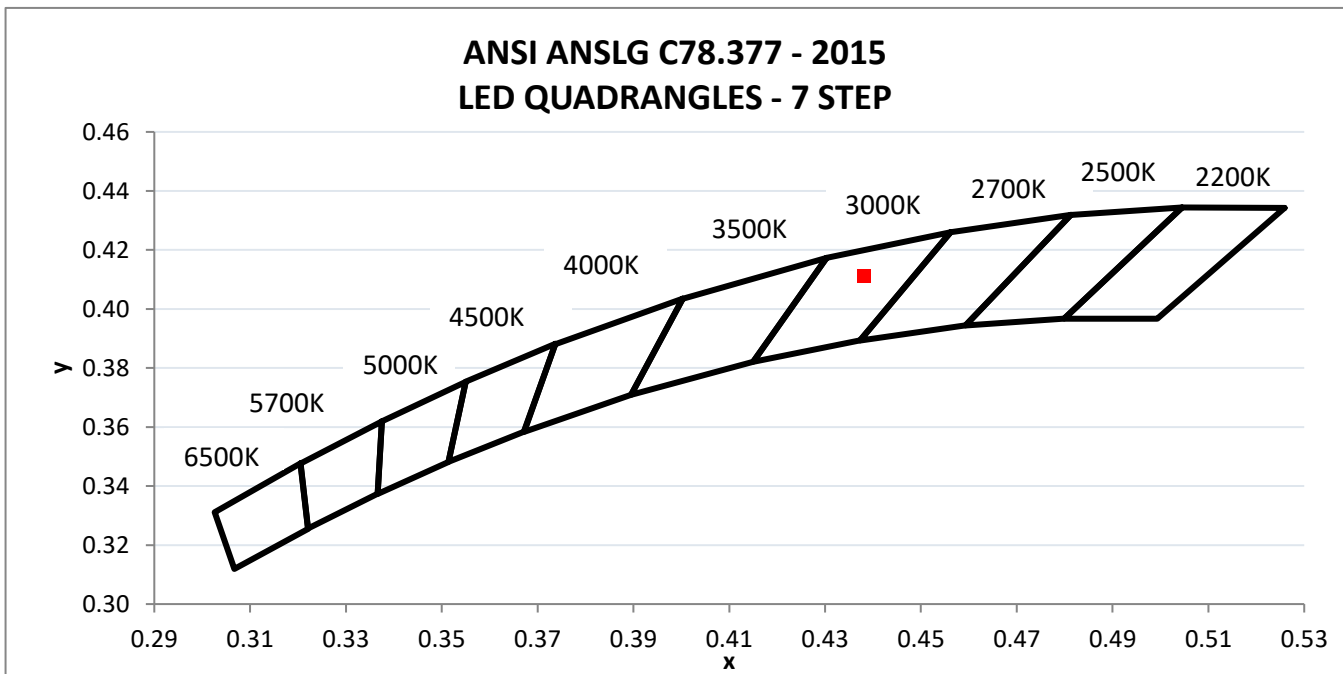
RESULTS OF TESTS

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 (%)
CRT1904111510-001-2	Base Up	120.00	169.4	19.56	0.962	27.93

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra ( )	CRI - R9 ( )	DUV ( )
459.1	23.5	3033	81.1	1.3	0.0025

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.438	0.411	0.248	0.524





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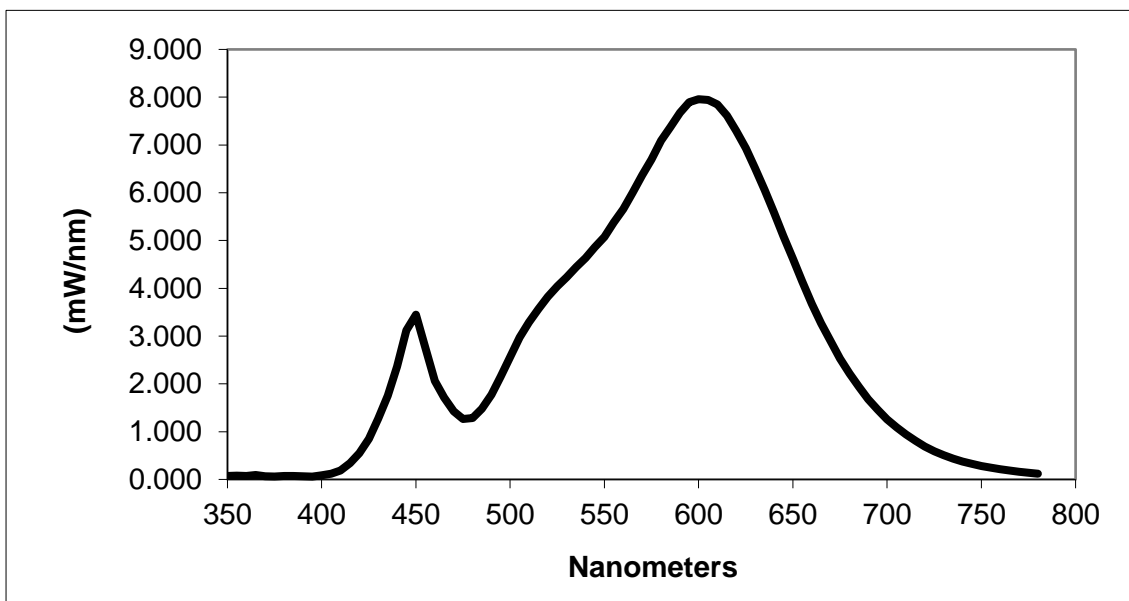
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**RESULTS OF TESTS**

**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	0.074	460	2.060	570	6.366	680	2.217
355	0.080	465	1.713	575	6.697	685	1.941
360	0.073	470	1.423	580	7.091	690	1.683
365	0.091	475	1.265	585	7.376	695	1.459
370	0.064	480	1.287	590	7.674	700	1.256
375	0.061	485	1.478	595	7.898	705	1.091
380	0.072	490	1.772	600	7.958	710	0.942
385	0.071	495	2.156	605	7.942	715	0.806
390	0.067	500	2.558	610	7.848	720	0.686
395	0.063	505	2.973	615	7.614	725	0.590
400	0.089	510	3.285	620	7.295	730	0.509
405	0.120	515	3.569	625	6.932	735	0.434
410	0.187	520	3.823	630	6.509	740	0.376
415	0.340	525	4.048	635	6.056	745	0.328
420	0.550	530	4.232	640	5.588	750	0.282
425	0.848	535	4.446	645	5.098	755	0.249
430	1.274	540	4.631	650	4.622	760	0.214
435	1.757	545	4.861	655	4.144	765	0.184
440	2.363	550	5.076	660	3.674	770	0.163
445	3.121	555	5.380	665	3.270	775	0.138
450	3.449	560	5.655	670	2.895	780	0.122
455	2.765	565	5.999	675	2.533		

\*Without correction of sample absorption.



**End Of Test Results**

## TEST REPORT

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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:

Handwritten signature of Gerald Gray in black ink.

Gerald Gray  
Associate Engineer  
Lighting Division

Report Reviewed By:

Handwritten signature of Ryan Siddon in black ink.

Ryan Siddon  
Project Engineer  
Lighting Division

Attachments: .IES File

## REVISION HISTORY

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