

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-003

ISSUE DATE

April 22, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2019 INTERTEK



PAGES

10

TEST REPORT**REPORT NO.: 103906489CRT-003****REPORT DATE: April 22, 2019**

TEST OF (1) LED TRACK SPOT LIGHT - TIGHT 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 - Tight Focus	Production	4/11/2019

DATE OF TESTS

April 17, 2019 through April 18, 2019.

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

TEST REPORT

REPORT NO.: 103906489CRT-003

REPORT DATE: April 22, 2019

SUMMARY

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

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	461.7	455.9
Input Power (W) @ 120 (VAC)	19.57	19.40
Lumen Efficacy (lm/W)	23.6	23.5
Input Power Factor () @ 120 (VAC)	0.962	0.993

CRITERIA	RESULTS
Correlated Color Temperature (K)	3049
Color Rendering Index - Ra ()	81.5
Color Rendering - R9 ()	3.1
DUV ()	0.0018
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.408
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.523
Input Current ATHD (%) @ 120 (VAC)	27.9

TEST REPORT

REPORT NO.: 103906489CRT-003

REPORT DATE: April 22, 2019

EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	CAL DUE DATE	DATE USED
LSI High Speed Mirror Goniometer	6440	---	5/5/2019	4/18/2019
Elgar AC Power Supply	CW1251	---	VBU	4/18/2019
Sorenson DC Power Supply	XG 150-10	---	VBU	4/18/2019
Yokogawa Power Analyzer	WT210	E464	5/3/2019	4/18/2019
Omega Thermometer	DPi8-C24	M263	5/3/2019	4/18/2019
M-D Building Products Digital Level	Smart Tool	L112	4/21/2019	4/18/2019
NIST Luminous Intensity Standard Source	NBS10322	N1427	2/11/2021	4/18/2019
NIST Luminous Intensity Standard Source	NBS10332	N1435	2/11/2021	4/18/2019
NIST Luminous Intensity Standard Source	NBS10265	N1437	2/11/2021	4/18/2019
NIST Luminous Flux Standard Source	NBS10428	N1424	1/3/2021	4/18/2019
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-003****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.

TEST REPORT

REPORT NO.: 103906489CRT-003

REPORT DATE: April 22, 2019

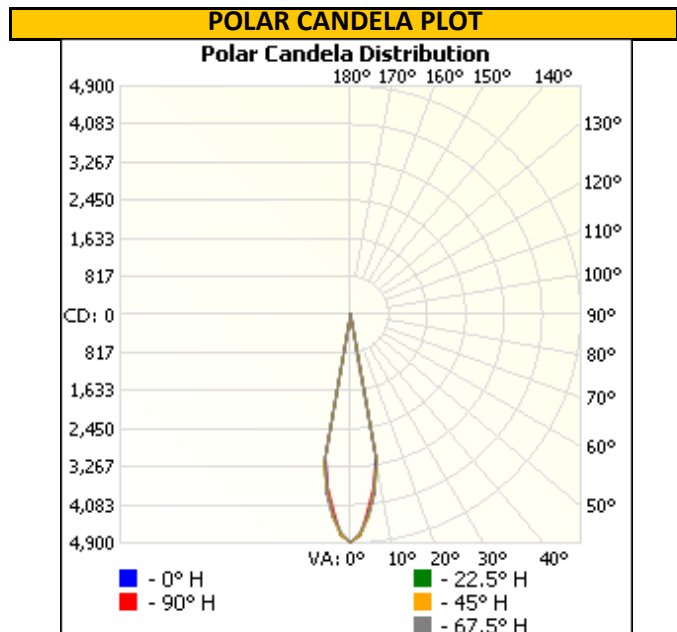
RESULTS OF TESTS

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	120.04	162.8	19.40	0.993	455.9	23.5

INTENSITY SUMMARY - CANDELA

Angle	0	22.5	45	67.5	90
0	4886	4886	4886	4886	4886
5	4347	4302	4363	4302	4198
10	3085	3268	3247	3174	3075
15	2	2	3	2	2
20	0	0	0	1	1
25	0	0	0	0	0
30	0	0	0	0	0
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



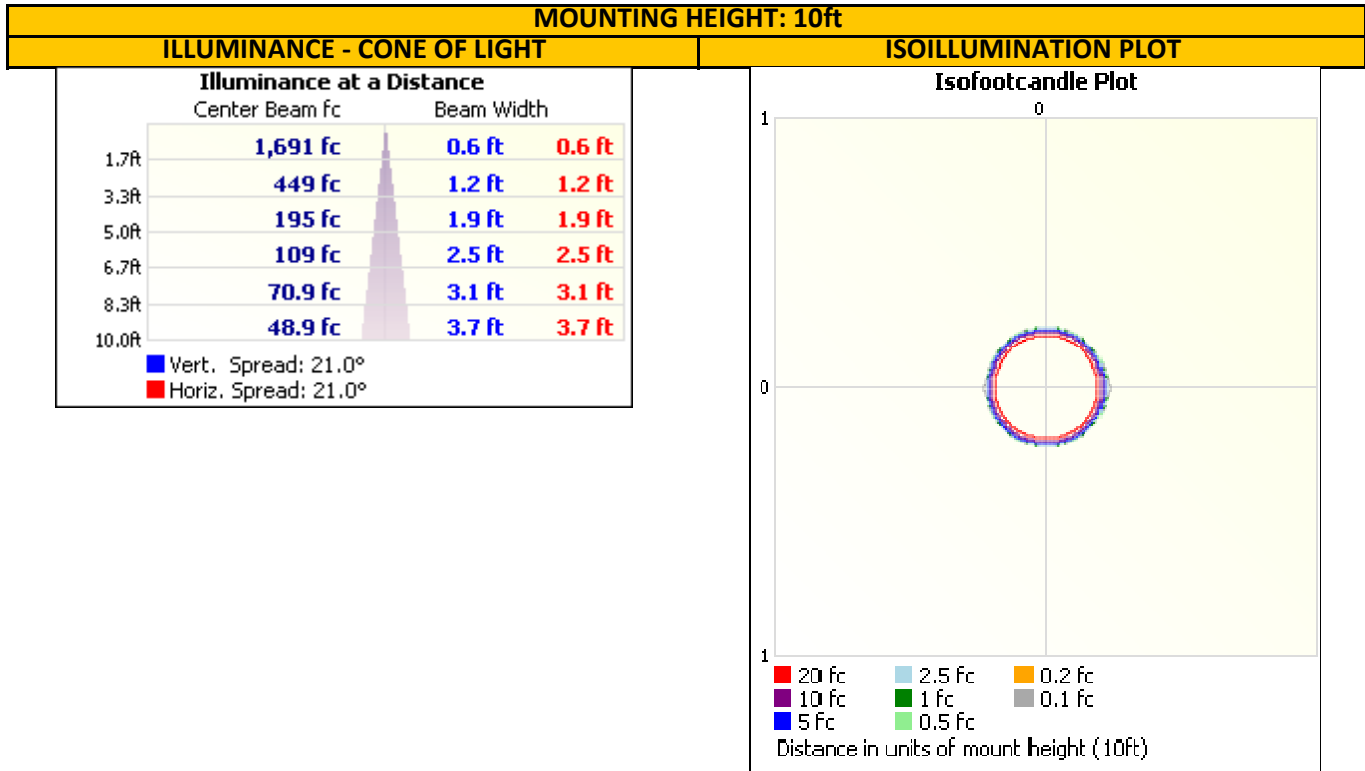
TEST REPORT

REPORT NO.: 103906489CRT-003

REPORT DATE: April 22, 2019

RESULTS OF TESTS

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



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	455.9	100.0
0-40	455.9	100.0
0-60	455.9	100.0
60-90	0.0	0.0
0-90	455.9	100.0
90-180	0.0	0.0
0-180	455.9	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	374.4	82.1
10-20	81.5	17.9
20-30	0.0	0.0
30-40	0.0	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

TEST REPORT

REPORT NO.: 103906489CRT-003

REPORT DATE: April 22, 2019

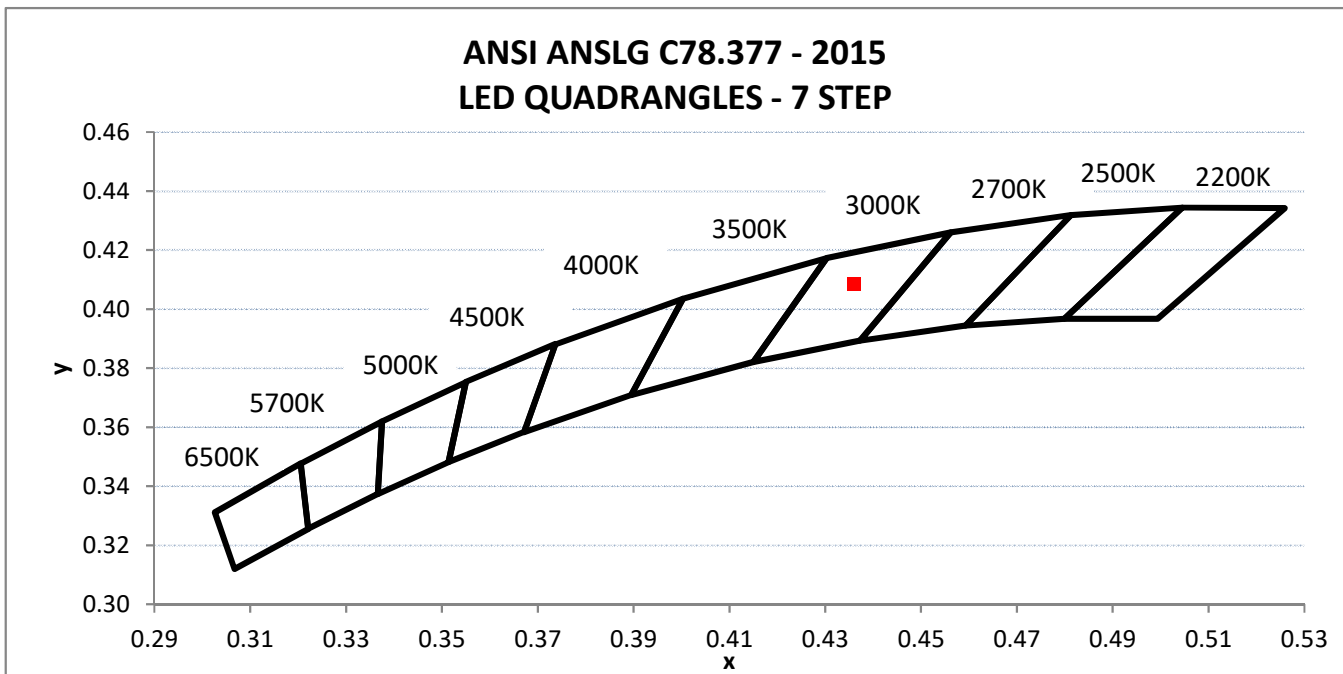
RESULTS OF TESTS

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	169.4	19.57	0.962	27.91

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra ()	CRI - R9 ()	DUV ()
461.7	23.6	3049	81.5	3.1	0.0018

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.436	0.408	0.248	0.523



TEST REPORT

REPORT NO.: 103906489CRT-003

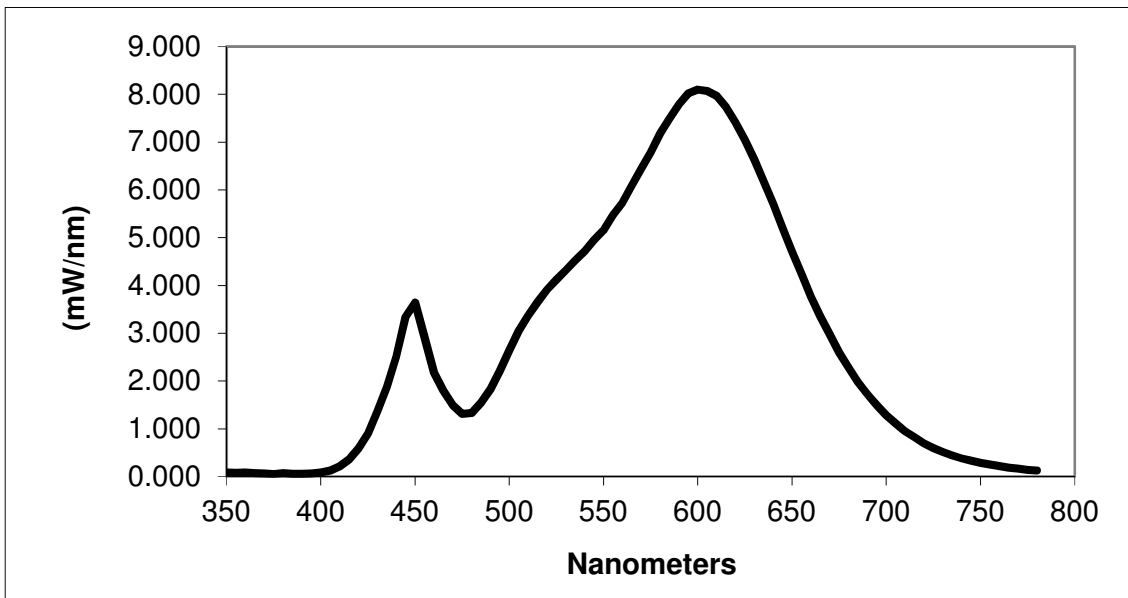
REPORT DATE: April 22, 2019

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	0.086	460	2.178	570	6.452	680	2.277
355	0.078	465	1.801	575	6.781	685	1.974
360	0.088	470	1.491	580	7.188	690	1.728
365	0.069	475	1.315	585	7.493	695	1.495
370	0.067	480	1.332	590	7.797	700	1.283
375	0.056	485	1.543	595	8.020	705	1.109
380	0.070	490	1.836	600	8.099	710	0.951
385	0.063	495	2.218	605	8.067	715	0.821
390	0.061	500	2.640	610	7.970	720	0.694
395	0.063	505	3.052	615	7.729	725	0.598
400	0.086	510	3.366	620	7.412	730	0.512
405	0.128	515	3.656	625	7.042	735	0.438
410	0.210	520	3.912	630	6.636	740	0.379
415	0.360	525	4.127	635	6.170	745	0.334
420	0.588	530	4.322	640	5.712	750	0.290
425	0.904	535	4.528	645	5.208	755	0.253
430	1.365	540	4.711	650	4.704	760	0.223
435	1.878	545	4.946	655	4.249	765	0.190
440	2.513	550	5.159	660	3.764	770	0.165
445	3.341	555	5.472	665	3.357	775	0.142
450	3.643	560	5.732	670	2.974	780	0.124
455	2.927	565	6.088	675	2.595		

*Without correction of sample absorption.



End Of Test Results

TEST REPORT

REPORT NO.: 103906489CRT-003

REPORT DATE: April 22, 2019

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				