



REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100125842

Date: August 17, 2010

REPORT NO. 100125842CRT-039

TEST OF LED CANDLE LAMPS

MODEL NOS.

S8899 / S8903

RENDERED TO

SATCO PRODUCTS, INC / KOLOURONE / WOOREE LIGHTING
110 HEARLAND BLVD
BRENTWOOD, NY 11717

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

LABORATORY NOTE: The laboratory that conducted the testing detailed in this report has been Qualified, Verified, and Recognized for LM-79 Testing for ENERGY STAR for SSL by US DOE's CALiPER program.

AUTHORIZATION: The testing performed was authorized by signed quote number 500233869.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79: 2008 Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2008 Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted three samples of model number S8899 / S8903. The samples were received by Intertek on July 13, 2010, in undamaged condition, and three samples were tested as received. The sample designations were S6181L, through S6183L.

DATES OF TESTS: July 26, 2010

SUMMARY

Model Nos.: S8899 / S8903
Description: CANDLE – 2.4W WHITE LENS 5000K

Criteria	Result
Total Lumen Output	110.1 Lumens
Total Power	2.31 W
Luminaire Efficacy	47.59
Power Factor	0.746
Color Rendering Index (CRI)	86.13
Correlated Color Temperature (CCT)	5091 K
Chromaticity Coordinate (x)	0.342
Chromaticity Coordinate (y)	0.347
Chromaticity Coordinate (u')	0.211
Chromaticity Coordinate (v')	0.482

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Calibration Date	Calibration Due Date
Elgar AC Power Supply	1001SX	---	---	---
Xitron Power Analyzer	2503H	E235	04/09/10	04/09/11
Elgar AC Power Supply	CW1251	--	--	--
Yokogawa Power Analyzer	WT1600	E462	06/11/10	06/11/11
Labsphere Diode Array	DAS 1100	N714	Before Use	Before Use
Leeds & Northup Standard Resistor	Manganin	Y089	02/10/10	02/10/11
Data Precision Digital Voltmeter	3600	V124	02/10/10	02/10/11
Fluke Multimeter	45	M133	02/10/10	02/10/11
Fluke Temperature Meter	52	T801	06/11/10	06/11/11
Kikusui DC Power Supply	35-10L	E160	---	---
Sorenson DC Power Supply	DLM150-20E	--	---	---
UDT Optometer	S370	N301	Before Use	Before Use
ITS Two Meter Diameter Integrating Sphere	---	N308	Before Use	Before Use
ITS Ten Foot Diameter Integrating Sphere	---	N307	Before Use	Before Use
NIST Luminous Flux Standard Sources	---	150-14, 8043, 8830	03/17/2010	03/17/11
NIST Spectral Flux Standard Source	RF0605	---	11/29/06	100 hours of use
LSI High Speed Mirror Goniophotometer	6440	--	Before Use	Before Use
Labsphere CDS 1100 CCD Spectroradiometer	CDS1100	--	Before Use	Before Use
Optronics Spectroradiometer	EL750D	E288	Before Use	Before Use



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 DAS 1100 Diode 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. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

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

Estimated Total Operating Time

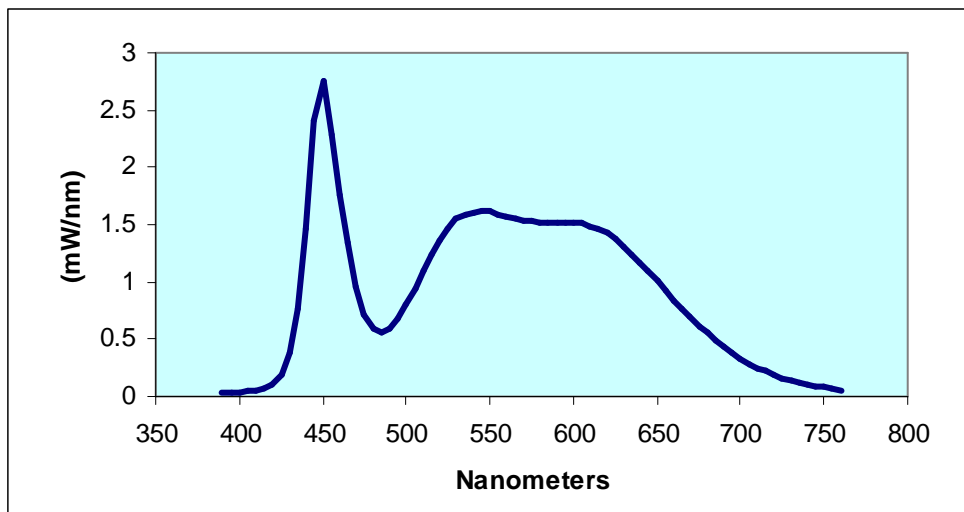
<u>Model Nos.</u>	<u>Total Hours</u>
S8899 / S8903	5

RESULTS OF TESTS

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
Sample No. S6181L, Model Nos. S8899 / S8903							
390	0.0321	500	0.8041	610	1.4899	720	0.1888
395	0.0412	505	0.9467	615	1.4638	725	0.1643
400	0.0400	510	1.0937	620	1.4241	730	0.1375
405	0.0457	515	1.2417	625	1.3723	735	0.1252
410	0.0502	520	1.3672	630	1.3076	740	0.1008
415	0.0705	525	1.4682	635	1.2456	745	0.0928
420	0.1080	530	1.5464	640	1.1724	750	0.0816
425	0.1999	535	1.5926	645	1.0959	755	0.0717
430	0.3886	540	1.6121	650	1.0094	760	0.0559
435	0.7620	545	1.6216	655	0.9238		
440	1.4721	550	1.6136	660	0.8456		
445	2.4021	555	1.5958	665	0.7720		
450	2.7545	560	1.5774	670	0.6891		
455	2.2917	565	1.5581	675	0.6165		
460	1.7602	570	1.5422	680	0.5520		
465	1.3360	575	1.5276	685	0.4889		
470	0.9601	580	1.5233	690	0.4301		
475	0.7209	585	1.5181	695	0.3782		
480	0.5969	590	1.5194	700	0.3302		
485	0.5581	595	1.5152	705	0.2863		
490	0.5854	600	1.5177	710	0.2493		
495	0.6759	605	1.5104	715	0.2191		

SATCO
Sample No. S6181L
Model Nos. S8899 / S8903
Spectral Data Over Visible Wavelengths



RESULTS OF TESTS (cont'd)

Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Correlated Color Temperature (K)	CRI	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
Model Nos. S8899 / S8903						
S6181L	5041	85.92	0.344	0.347	0.212	0.482
S6182L	5129	86.36	0.341	0.346	0.211	0.482
S6183L	5104	86.10	0.342	0.347	0.211	0.482
Average	5091	86.13	0.342	0.347	0.211	0.482

Photometric and Electrical Measurements – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
Model Nos. S8899 / S8903							
S6181L	UP	120.0	26.2	2.31	0.735	106.0	45.90
S6182L	UP	120.0	26.0	2.32	0.748	112.4	48.46
S6183L	UP	120.0	25.6	2.31	0.755	111.8	48.39
Average	UP	120.0	25.9	2.31	0.746	110.1	47.59


Picture (not to scale)




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:


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 Lighting Division

Report Reviewed By:


 Jacki Swiernik
 Project Engineer
 Lighting Division

Attachment: None