

Energy - Docket Optical System

From: Kent Whiting [Kent.Whiting@switchlightingco.com]
Sent: Thursday, May 09, 2013 5:15 PM
To: Energy - Docket Optical System
Subject: Switch Light Bulbs Data Submission - CEC Docket 12-AAER-2B
Attachments: CEC Docket 12-AAER-2B Switch.pdf

Categories: Ready to Docket

California Energy Commission

DOCKETED

12-AAER-2B

TN # 70727

MAY 09 2013

Mr. Taylor,

Thank you for the opportunity to participate in this rulemaking process. I am sorry that we are not able to provide input on many of these topics.

All Lighting Categories

- 3 Test procedures (existing or under development)
 - IES LM-84 SSL products lumen maintenance test
 - Similar to IES LM-80, but for the complete product, not just the LED
 - IES TM-28 LED lamp lumen maintenance projection
 - Similar to IES TM-21, but for a complete LED lamp, not just the LED
- Energy use metrics (e.g., lumens vs. beam lumens per watt)
 - We believe that the following metrics are worthwhile in evaluating the energy use of lighting products
 - Efficacy in LPW
 - Input Power
 - Power Factor
 - Lumens
 - Actual Lifetime (determined by technology neutral definitions even if test methods necessarily vary)
- Relevant performance indicators
 - Safety (UL, CSA, ETL etc...)
 - Light Appearance (CCT)
 - CRI
 - R9
 - Omnidirectional Form Factor
 - Luminous Intensity Distribution
 - Lumen Maintenance
 - Color Maintenance
 - Audible Noise
 - Dimming performance
- Number of California small businesses associated with manufacture, sale, distribution, or installation
 - Switch Lighting is a small business headquartered in California

LED Lamps

- LM-79 and TM-21 reports
 - Please find attached the LM-79 reports for our currently available products
 - Switch40 Frosted
 - Switch60 Clear
 - Switch60 Frosted
 - Switch75 Clear
 - Switch75 Frosted
 - Soon I will have reports for the Switch100 Clear and Switch3-Way Frosted, but do not have something I can share with you today.

Please let me know if you have any questions,

Kent Whiting
Regulatory Compliance Manager

SWITCH Lighting

Cell 408-607-0614

Direct 408-457-3837

225 Charcot Ave

San Jose, CA 95131

kent.whiting@switchlightingco.com | www.switchlightingco.com

SWITCH



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

REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G101011395

Date: January 3, 2013

REPORT NO. 101011395CRT-001

RENDERED TO
SWITCH BULB COMPANY
225 CHARCOT AVE
SAN JOSE, CA 95131

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.

The testing performed was authorized by signed quote number 500414811. The sample was received by Intertek on November 6, 2012, in undamaged condition and one sample was tested as received. The sample designation was 257865-1. Testing was conducted from November 8, 2012 through November 9, 2012.

Model No.:	A21081FA1
Description:	Switch40 Frosted LED Lamp
Standards Used	IESNA LM-79: 2008 and ANSI ANSLG C38.377: 2012
Note:	This document is a summary of report 100955675CRT-001

Criteria	Result
Total Lumen Output	481.0 Lumens
Total Power	7.80 W
Luminaire Efficacy	61.67
Power Factor	0.907
Current ATHD	26.36%
Correlated Color Temperature (CCT)	2658 K
Color Rendering Index (CRI) - Ra	86.18
Color Rendering Index (CRI) - R9	26.2
Duv	0.001
Chromaticity Coordinate (x)	0.462
Chromaticity Coordinate (y)	0.410
Chromaticity Coordinate (u')	0.265
Chromaticity Coordinate (v')	0.527



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. Details of the test methods, equipment and results are in report 100955675CRT-001.

In Charge Of Tests:

Joseph Schledorn
Engineer
Lighting Division

Report Reviewed By:

Jeffrey Davis
Senior Associate Engineer
Lighting Division

Attachment: NONE

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REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G101011395

REPORT NO. 101011395CRT-002

Date: January 3, 2013

RENDERED TO
SWITCH BULB COMPANY
225 CHARCOT AVE
SAN JOSE, CA 95131

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.

The testing performed was authorized by signed quote number 500414811. The sample was received by Intertek on November 6, 2012, in undamaged condition and one sample was tested as received. The sample designation was 257865-2. Testing was conducted from November 8, 2012 through November 9, 2012.

Model No.:	A22131CA1-10
Description:	Switch60 Clear LED Lamp
Standards Used	IESNA LM-79: 2008 and ANSI ANSLG C38.377: 2012
Note:	This document is a summary of report 100955675CRT-002

Criteria	Result
Total Lumen Output	803.1 Lumens
Total Power	11.53 W
Luminaire Efficacy	69.65
Power Factor	0.940
Current ATHD	26.07%
Correlated Color Temperature (CCT)	2758 K
Color Rendering Index (CRI) - Ra	81.37
Color Rendering Index (CRI) - R9	6.7
Duv	0.001
Chromaticity Coordinate (x)	0.454
Chromaticity Coordinate (y)	0.407
Chromaticity Coordinate (u')	0.260
Chromaticity Coordinate (v')	0.525



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. Details of the test methods, equipment and results are in report 100955675CRT-002.

In Charge Of Tests:

Joseph Schledorn
Engineer
Lighting Division

Attachment: NONE

Report Reviewed By:

Jeffrey Davis
Senior Associate Engineer

Lighting Division

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FOR THE SCOPE OF
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REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G101011436

REPORT NO. 101011436CRT-002A

Date: February 4, 2013

RENDERED TO
SWITCH BULB COMPANY
225 CHARCOT AVE
SAN JOSE, CA 95131

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.

The testing performed was authorized by signed quote number 500424073. The sample was received by Intertek on December 31, 2012, in undamaged condition and one sample was tested as received. The sample designation was 260455-2. Testing was conducted on January 8, 2013.

Model No.:	A22141FA1-10
Description:	60W Frosted A19
Standards Used	IESNA LM-79: 2008 and ANSI ANSLG C38.377: 2012
Note:	This document is a summary of report 101011436CRT-002

Criteria	Result
Total Lumen Output	815.8 Lumens
Total Power	13.61 W
Luminaire Efficacy	59.94 lm/W
Power Factor	0.936
Current ATHD	29.85 %
Correlated Color Temperature (CCT)	2796 K
Color Rendering Index (CRI) - Ra	80.07
Color Rendering Index (CRI) - R9	2.50
Duv	0.001
Chromaticity Coordinate (x)	0.451
Chromaticity Coordinate (y)	0.407
Chromaticity Coordinate (u')	0.259
Chromaticity Coordinate (v')	0.524



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. Details of the test methods, equipment and results are in report 101011436CRT-002.

In Charge Of Tests:

Joseph Schledorn
Engineer
Lighting Division

Report Reviewed By:

Jeffrey Davis
Senior Associate Engineer
Lighting Division

Attachment: NONE

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REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G101011395

REPORT NO. 101011395CRT-003

Date: January 3, 2013

RENDERED TO
SWITCH BULB COMPANY
225 CHARCOT AVE
SAN JOSE, CA 95131

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The testing performed was authorized by signed quote number 500414811. The sample was received by Intertek on November 6, 2012, in undamaged condition and one sample was tested as received. The sample designation was 257865-4. Testing was conducted from November 8, 2012 through November 9, 2012.

Model No.:	A23181CA2-10
Description:	Switch75 Clear LED Lamp
Standards Used	IESNA LM-79: 2008 and ANSI ANSLG C38.377: 2012
Note:	This document is a summary of report 100955675CRT-004

Criteria	Result
Total Lumen Output	1113 Lumens
Total Power	16.92 W
Luminaire Efficacy	65.78
Power Factor	0.944
Current ATHD	29.54%
Correlated Color Temperature (CCT)	2751 K
Color Rendering Index (CRI) - Ra	80.20
Color Rendering Index (CRI) - R9	3.0
Duv	0.003
Chromaticity Coordinate (x)	0.450
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.261
Chromaticity Coordinate (v')	0.522



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. Details of the test methods, equipment and results are in report 100955675CRT-004.

In Charge Of Tests:

Joseph Schledorn
Engineer
Lighting Division

Attachment: NONE

Report Reviewed By:

Jeffrey Davis
Senior Associate Engineer

Lighting Division

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INTEGRATING SPHERE TEST REPORT

April 30, 2013

IES LM79-08 Section 9.1

Technical Report

TÜV SÜD America

J11304157-1-SPH

Sample Tested: Switch75 Frosted
Model Number: A23201FA2-10 & 75FU110

Manufacturer: SWITCH Lighting



Sample Description: Omnidirectional A19 LED
Serial # B075F141300767

Test Orientation: Lamp Base Down
LBD / Stable

Date of Test: March 6, 2013



Tested by

Reviewed by

Tim Gentry

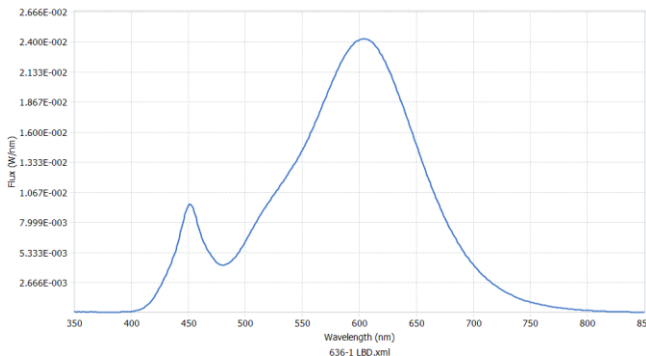
Byrd Evans

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Handler

TÜV SÜD Project Handler

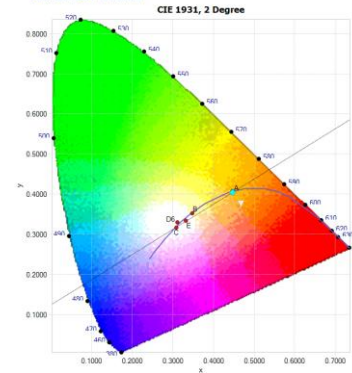
Test Results: LBD/Stable

▼ SPECTRAL FLUX GRAPH:



Spectral Response

▼ CHROMATICITY DIAGRAM:



Chromaticity Diagram

Tristimulus Values: $x / y = 0.4476 / 0.4049$

Photometric Test Results

Luminous Flux (Lumens)	1164
Efficacy (Lumens/Watt)	60.09
Color Temperature (CCT K)	2832
Color Rendering Index (CRI)	80.1
R ₉ Value	2.1
Radiant Flux (W/nm)	3.6
Chroma u' / Chroma v'	0.2571 / 0.5233
Duv	-0.00098

Electrical Test Results

Input Power (Watts)	19.37
Input Voltage (Volts)	119.99
Input Current (Amps)	0.168
Power Factor	0.964
Input Frequency (Hz)	60.0
Stabilization Time	120 minutes
Ambient Temperature	25.3°C
A-THD (Current %)	23.61

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TÜV SÜD America, Inc.
5945 Cabot Parkway, Suite 100,
Alpharetta, GA 30005 USA



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