GlobTek, Inc.

GlobTek® CEC Certificate of Compliance

Product Name:	**Power Adapter**
Manufacturer Importer	**GlobTek, Inc.**
Address:	**186 Veterans Drive, Northvale, NJ 07647**
Model Number:	**Model No.: GT-41082-1812**

Declare that the product conforms to the following specifications

This document hereby certifies the above listed products are in compliance with the California's Energy Efficiency Standards level V and meet the Appliance Efficiency Regulations, (California Code of Regulations, Title 20, Sections 1601 through 1608) dated January 2006.

The above listed products have been tested at a laboratory certified by the California Energy Commission. The test method was according to US EPA "Test Method for Calculating the Energy Efficiency of Single-Voltage External AC-DC and AC-AC Power Supplies" dated August 11, 2004.

Manufacturer/ Importer

Company Name	**GlobTek, Inc.**		
Position	**R&D Dept. Vice President**		
Name (Type name)	**Johnny Liu**	**Authorized Signature**	

GlobTek, Inc.

TEST REPORT

California Energy Commission's Appliance Regulations

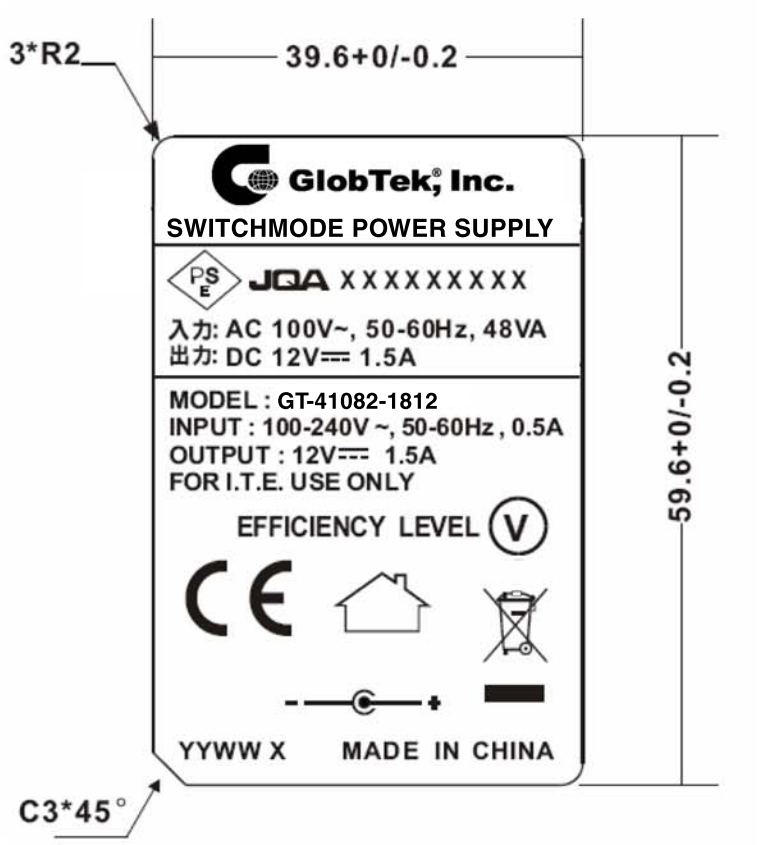
(Section 1601 – 1608 of Title 20 of the California Code of Regulations)

Report Reference No. ..... :	**GT CEC-090424-02**
Tested by (name +signature)..... :	CC Huang CC. Huang 5/4 2009
Engineer by (name +signature).... :	Jimmy Chang 張家祥 5/4
Approved by (name +signature)... :	Mike Chang Mike Chang 5/4 2009
Testing Laboratory ..... :	GlobTek, Inc.
Address ..... :	186 Veterans Drive, Northvale, NJ 07647
Manufacturer's name ..... :	GlobTek, Inc.
Address ..... :	186 Veterans Drive, Northvale, NJ 07647

Test specification :

Standard ..... :	California Energy Commission's Appliance Regulations (Section 1601 -1608 of Title 20 of the California Code of Regulations)
Test procedure ..... :	US EPA-Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies, August 11, 2004
Test item description ..... :	■ **AC-DC power supply** ☐ **AC-AC power supply**
Trade Mark ..... :	GT
Model/Type reference ..... :	GT-41082-1812
Ratings ..... :	Input: 100-240 Vac, 50-60 Hz, 0.5 A Output: 12 Vdc, 1.5 A

Copy of marking plate/Label



Test item particulars : ……..... :
EUT output cord length …….... : 1530 mm + 50 / - 0 (20 AWG)
Possible test case verdicts: -test case does not apply to the test object …… : N/A -test object does meet the requirement …….. : P(Pass) -test object does not meet the requirement …... : F(Fail)
Testing : Date of receipt of test item ……... : 2009/04/24 Date (s) of performance of tests ……..... : 2009/04/24
General remarks: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma (point) is used as the decimal separator. **The Report contains the following Enclosures:** Enclosure 1 : Photographs Enclosure 2 : Test Equipment List
General product information: ● The EUT (Equipment under Test) is an Ac-Dc switching supply for Information Technology Equipment used.

US EPA – Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies			
Clause	Requirement + Test	Result – Remark	Verdict
4	General Conditions for Measurement		P
a.	Test Voltage		
	An ac reference source shall be used to Provide input voltage to the EUT.	See Enclosure 2	P
	Input to the EUT shall be the specified Voltage ± 1% and the specified frequency ± 1%	See appended table	P
	The EUT shall be tested at two voltage and Frequency combinations:	See below	P
	115V at 60Hz	See appended table	P
	230v at 50Hz	See appended table	P
b.	Load Condition		
	The EUT shall be tested at the following load Conditions:		
	Load condition 1 : 100% ± 2%		P
	Load condition 2 : 75% ± 2%		P
	Load condition 3 : 50% ± 2%		P
	Load condition 4 : 25% ± 2%		P
	Load condition 5 : 0%	0 A	P
c.	Testing Sequence		
	The EUT shall be operated at 100% of nameplate current output for at least 30 minutes immediately prior to conducting efficiency measurements.	The EUT is operated at 100% of nameplate current output for 30 minutes	P
	After this warm-up period, the technician shall monitor ac input power for a period of 5 minutes to assess the stability of the EUT.		P
	If the power level does not drift by more than 5% from the maximum value observed, the EUT can be considered stable and the measurements can be recorded at the end of the 5 minute period.		P
	If ac input power is not stable over a 5 minute period, the technician shall follow the guidelines established by IEC 62301 for measuring average power or accumulated energy over time for both ac input and dc output		N
	Efficiency measurements shall be conducted In sequence from Load Condition 1 to Load Condition 5 as indicated in Table		P

US EPA – Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies			
Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) ..... :	25 (℃) Sample 1	
	Test voltage (V) ..... :	115 (V)	
	Frequency (Hz) ..... :	60 (Hz)	

Test Item	Measure at load condition					
	1	2	3	4	5	
Rms Output Current (mA)	1500	1125	750	375	0	
Rms Output Voltage (V)	11.87	11.91	11.96	12.00	12.05	
Active Output Power (W)	17.80	13.39	8.97	4.50	0	
Rms input voltage (V)	115	115	115	115	115	
Rms input Power (W)	21.31	15.81	10.59	5.44	0.14	
Total Harmonic Distortion(THD)	1.6%	1.6%	1.6%	1.6%	1.6%	
True Power Factory	0.598	0.586	0.570	0.546	0.127	
Power Consumed by EUT(W)	3.51	2.42	1.62	0.94	Mea. **0.14**	Req. 0.3
Efficiency	83.52	84.69	84.70	82.72	N/A	
Average Efficiency	83.90 % (Requirement: 80.29 %)				P	

Supplementary information:

CALIFORNIA CODE OF REGULATIONS, TITLE 20: DIVISION, CHAPTER 4, ARTICLE 4, Section 1605.3(u)(1) states:

The efficiency in the active mode of power supplies manufactured on or after the effective Dates shall be not less than the applicable values shown (expressed as the decimal Equivalent of a percentage); and the energy consumption in the no-load mode of power Supplies manufactured on or after the effective dates shown shall be not greater than the Applicable values shown in Table 1 or Table 2 and Table 4.

US EPA – Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies			
Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) ..... :	25 (℃) Sample 1	
	Test voltage (V) ..... :	230 (V)	
	Frequency (Hz) ..... :	50 (Hz)	

Test Item	Measure at load condition				
	1	2	3	4	5
Rms Output Current (mA)	1500	1125	750	375	0
Rms Output Voltage (V)	11.84	11.92	11.96	12.01	12.05
Active Output Power (W)	17.76	13.41	8.97	4.50	0
Rms input voltage (V)	230	230	230	230	230
Rms input Power (W)	21.29	15.90	10.96	5.73	0.22
Total Harmonic Distortion(THD)	1.6%	1.6%	1.6%	1.6%	1.6%
True Power Factor	0.520	0.508	0.493	0.462	0.063
Power Consumed by EUT(W)	3.53	2.49	1.99	1.23	Mea. **0.22** / Req. 0.3
Efficiency	83.41	84.33	81.84	78.53	N/A
Average Efficiency	82.02 % (Requirement: 80.29 %)				P

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US EPA – Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies			
Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) ..... :	25 (℃) Sample 2	
	Test voltage (V) ..... :	115 (V)	
	Frequency (Hz) ..... :	60 (Hz)	

Test Item	Measure at load condition					
	1	2	3	4	5	
Rms Output Current (mA)	1500	1125	750	375	0	
Rms Output Voltage (V)	11.92	11.97	12.01	12.06	12.10	
Active Output Power (W)	17.88	13.46	9.00	4.52	0	
Rms input voltage (V)	115	115	115	115	115	
Rms input Power (W)	21.42	15.89	10.63	5.51	0.14	
Total Harmonic Distortion(THD)	1.6%	1.6%	1.6%	1.6%	1.6%	
True Power Factor	0.599	0.587	0.571	0.546	0.124	
Power Consumed by EUT(W)	3.54	2.43	1.63	0.99	Mea. **0.14**	Req. 0.3
Efficiency	83.47	84.70	84.66	82.03	N/A	
Average Efficiency	83.71 % (Requirement: 80.29 %)				P	

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US EPA – Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies			
Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) ..... :	25 (℃) Sample 2	
	Test voltage (V) ..... :	230 (V)	
	Frequency (Hz) ..... :	50 (Hz)	

Test Item	Measure at load condition				
	1	2	3	4	5
Rms Output Current (mA)	1500	1125	750	375	0
Rms Output Voltage (V)	11.93	11.97	12.01	12.06	12.10
Active Output Power (W)	17.89	13.46	9.00	4.52	0
Rms input voltage (V)	230	230	230	230	230
Rms input Power (W)	21.42	16.00	10.97	5.76	0.21
Total Harmonic Distortion(THD)	1.6%	1.6%	1.6%	1.6%	1.6%
True Power Factor	0.520	0.508	0.493	0.462	0.058
Power Consumed by EUT(W)	3.53	2.54	1.97	1.24	Mea. **0.21** / Req. 0.3
Efficiency	83.52	84.12	82.04	78.47	N/A
Average Efficiency	82.03 % (Requirement: 80.29 %)				P

Supplementary information:

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US EPA – Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies			
Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) ..... :	25 (℃) Sample 3	
	Test voltage (V) ..... :	115 (V)	
	Frequency (Hz) ..... :	60 (Hz)	

Test Item	Measure at load condition				
	1	2	3	4	5
Rms Output Current (mA)	1500	1125	750	375	0
Rms Output Voltage (V)	11.87	11.91	11.96	12.00	12.05
Active Output Power (W)	17.80	13.39	8.97	4.50	0
Rms input voltage (V)	115	115	115	115	115
Rms input Power (W)	21.38	15.86	10.60	5.48	0.15
Total Harmonic Distortion(THD)	1.6%	1.6%	1.6%	1.6%	1.6%
True Power Factor	0.599	0.587	0.571	0.545	0.131
Power Consumed by EUT(W)	3.58	2.47	1.63	0.98	Mea. **0.15** / Req. 0.3
Efficiency	83.25	84.42	84.62	82.11	N/A
Average Efficiency	83.60 % (Requirement: 80.29 %)				P

Supplementary information:

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US EPA – Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies			
Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) ..... :	25 (℃) Sample 3	
	Test voltage (V) ..... :	230 (V)	
	Frequency (Hz) ..... :	50 (Hz)	

Test Item	Measure at load condition				
	1	2	3	4	5
Rms Output Current (mA)	1500	1125	750	375	0
Rms Output Voltage (V)	11.87	11.91	11.96	12.00	12.05
Active Output Power (W)	17.80	13.39	8.97	4.50	0
Rms input voltage (V)	230	230	230	230	230
Rms input Power (W)	21.44	15.98	10.90	5.76	0.22
Total Harmonic Distortion(THD)	1.6%	1.6%	1.6%	1.6%	1.6%
True Power Factor	0.520	0.509	0.493	0.462	0.061
Power Consumed by EUT(W)	3.64	2.59	1.93	1.26	Mea. **0.22** / Req. 0.3
Efficiency	83.02	83.79	82.29	78.12	N/A
Average Efficiency	81.80 % (Requirement: 80.29 %)				P

Supplementary information:

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Table 1: Energy-Efficiency Criteria for AC-AC and AC-DC External Power Supplies in Active Mode:Standard Models

Nameplate Output Power (P_{no})	*Minimum Average Efficiency in Active Mode Mode (expressed as a decimal)[2]*
0 to ≦ 1 Watt	≧0.480 * ***Pno*** + 0.140
> 1 to ≦ 49 Watts	≧[0.0626 * Ln ***(Pno)***] + 0.622
> 49 Watts	≧0.870

Table 2: Energy-Efficiency Criteria for AC-AC and AC-DC External Power Supplies in Active Mode:Low Voltage Models

Nameplate Output Power (P_{no})	*Minimum Average Efficiency in Active Mode Mode (expressed as a decimal)[2]*
0 to ≦ 1 Watt	≧0.497 * ***Pno*** + 0.067
> 1 to ≦ 49 Watts	≧[0.0750 * Ln ***(Pno)***] + 0.561
> 49 Watts	≧0.860

Table 3: Examples of Minimum Average Efficiency in Active Mode

Sample	Nameplate Output Power (Pno)	Nameplate Output Voltage	Nameplate Output Current	Average Efficiency in Active Mode (expressed as a decimal)
PS 1	0.75 watts	1V	750 mA	0.497 * 0.75+0.067＝0.4397 or 0.44
PS 2	0.75 watts	10V	75 mA	0.480 * 0.75+0.140＝0.5
PS 3	20 watts	5V	4000 mA	[0.0750 * Ln (20)]+0.561＝0.7856 or 0.79
PS 4	20 watts	10V	2000 mA	[0.0626 * Ln (20)]+0.622＝0.8077or 0.81
PS 5	75 watts	5V	15000 mA	0.86
PS 6	75 watts	10V	750 mA	0.87

Table 4: Energy Consumption Criteria for No-Load

Nameplate Output Power (P_{no})	*Maximum Power in No-Load*	
	AC-AC EPS	***AC-DC EPS***
0 to < 50 Watts	≦ 0.5 watts	≦ 0.3 watts
≧ 50 to ≦ 250 Watts	≦ 0.5 watts	≦ 0.5 watts

Enclosure 1

Photos of EUT

Enclosure 1

Photos of EUT

Enclosure 2

Test Equipment List

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Ac Power Source	Chroma	6110	A6G0790001	----
Ac Power Source	Chroma	6408	6408-2000553	----
Current Meter	Yokogawa	2013	B610210007	2009-12-25
Multimeter	FLUKE	187	TA0000572	2009-12-25
Variably Resister	----	----	A6G0160001	2009-12-25
Digital Power Meter	Yokogawa	WT210	B6G1080007 91F138523	2009-12-25
Digital Power Meter	Voltech	PM100	B6G0380001	2009-12-25
Electronic Load DC Load	Chroma	6304-63010	A6G0450009	2010-03-11
Electronic Load DC Load	Prodigit	3300C+3311D	A6G14500025 A6G14500023 A6G14500024	2010-03-11

Test Equipment Set-up