

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (Information Technology Equipment - Safety - Part 1: General Requirements)
<b>Certification Type:</b>	Listing
<b>CCN:</b>	QQGQ, QQGQ7 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Product:</b>	Switching Power Adapter
<b>Model:</b>	GT-41082-WWVV-X.X-T2 series , WW is the rated output wattage designation, with a maximum value of "18"; VV is the standard rated output voltage designation, with a maximum value of "15"; -X.X is optional or blank and denotes the output voltage differentiator, subtracting or adding X.X volts from standard output voltage VV in 0.1V increments.
<b>Rating:</b>	I/P: 100-240 Vac, 50-60 Hz, 0.5 A  For model GT-41082-1805-T2 O/P: 5 Vdc, 3 A  For Model GT-41082-1805-T2 O/P: 5 Vdc, 3.6 A  For model GT-41082-1806-T2 O/P: 6 Vdc, 3 A  For Model GT-41082-1812-T2 O/P: 12 Vdc, 1.5 A  For model GT-41082-1815-T2 O/P: 15 Vdc, 1.2 A
<b>Applicant Name and Address:</b>	GLOBTEK (HONG KONG) LTD UNIT 1402, BENSON TOWER 74 HUNG TO RD KWUN TONG KOWLOON HONG KONG

Issue Date: 2011-12-14  
2012-01-20

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Report Reference #

E341351-A44-UL

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Paul Wan

Reviewed by: Henry Ho

### Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
  - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
  - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
  - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

### Product Description

Electronic components mounted on PWB and housed in a plastic enclosure.

### Model Differences

All models are similar to each other except for transformer secondary winding turns, secondary components (Inductor, L1 and Resistor, R17, R18) and output rating. (See Enclosure 7-01 for model difference.)

Report refers to original model numbers. See Enclosure Miscellaneous 7-02 for correlation between original models and models listed on Page 1 of Report.

### Technical Considerations

- Equipment mobility : movable
- Connection to the mains : pluggable A
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class II (double insulated)

- Considered current rating (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : < 2000
- Altitude of test laboratory (m) : < 2000
- Mass of equipment (kg) : 0.15 kg max.
- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 40 degree C
- The means of connection to the mains supply is: Pluggable A Detachable power cord
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: Appliance inlet
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): Output.
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: CY1, CY2

**Additional Information**

Revision: SR8227620-T001

Transfer File from the File E336418, Vol. X7, E336418-A51 into the File E341351, Vol. X8, E341351-A44.

Revision (11CA65162)

- Upgrade standard to UL60950-1, 2nd Edition.

**Additional Standards**

The product fulfills the requirements of: N/A

**Markings and instructions**

Clause Title	Marking or Instruction Details
LPS	

	(Optional) Marked "LPS" or "Limited Power Supply".
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
1.7.6 Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
1.7.1 Power rating - Class II symbol	Symbol for Class II construction
<p><b>Special Instructions to UL Representative</b></p> <p>Inspect the transformer(s) listed in BD1.1 per AA1.1- (C). When the tests are conducted at other location, inspect test record and specification sheet provided by the component manufacturer. Verify the specification sheet indicates 100% routine test specified in BD1.1 be conducted at the component manufacturer.</p> <p>Report refers to original model numbers for UL Representative inspection. See Enclosure Miscellaneous 7-02 for correlation between original models and models listed on Page 1 of Report.</p>	

**Production-Line Testing Requirements**

**Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.**

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
All models	Transformer T1	N/A	Primary to Secondary	300 0	4242	1

**Earthing Continuity Test Exemptions - This test is not required for the following models:**

**Electric Strength Test Exemptions - This test is not required for the following models:**

**Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:**

**Sample and Test Specifics for Follow-Up Tests at UL**

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					

**TABLE: List of Critical Components**

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
Enclosure	Sabic Innovative Plastics Us L L C	SE1X	Two pieces construction, secured together by ultrasonic welding, rated V-1 or better, 105 degree C min., 2.0 mm thick min.	QMFZ2	UL
Appliance Inlet	Tecx-Unions Technology Corp	SO-222	Rated 250 V, 2.5 A, 75 degree C min.	AXUT2	UL
Appliance Inlet (Alternate)	Sun Fair Electric Wire & Cable (HK) Co Ltd	S-01	Rated 250 V, 2.5 A, 70 degree C min.	AXUT2	UL
Appliance Inlet (Alternate)	Supercom Wire & Cable Co Ltd	SC-12S	Rated 250 V, 2.5 A, 75 degree C min.	AXUT2	UL
Appliance Inlet (Alternate)	Inalways Corp	0721 Series	Rated 250 V, 2.5 A, 105 degree C min.	AXUT2	UL
Appliance Inlet (Alternate)	Yueqing Leci Electronics Co Ltd	DB-8	Rated 250 V, 2.5 A, 105 degree C min.	AXUT2	UL
Appliance Inlet (Alternate)	Rich Bay Co Ltd.	R-201SN90	Rated 250 V, 2.5 A, 105 degree C min.	AXUT2	UL
Fuse (F1)	Various	Various	Listed, T1.0A, 250Vac	JDYX	UL
Fuse (F1) (Alternate)	Conquer Electronics Co Ltd	MST	Rated T1.0A, 250Vac.	JDYX2	UL
Fuse (F1) (Alternate)	Ever Island Electric Co Ltd & Walter Electric	2010	Rated T1.0A, 250Vac.	JDYX2	UL
Fuse (F1) (Alternate)	COOPER BUSSMANN INC	SS-5	Rated T1.0A, 250Vac.	JDYX2	UL
Fuse (F1) (Alternate)	Bel Fuse Inc	RST	Rated T1.0A, 250Vac.	JDYX2	UL
Line choke (NF1)(optional)	Various	NF00030	See enclosure 4-05 for details, class 130 degree C minimum.	--	--
- Coil	--	--	130 degree C, ANSI TYPE MW28 or MW75 or MW79 or MW80	OBMW2	UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
- Core	--	--	Ferrite, dimension 15.1mm by 10.1mm by 3.0mm	--	--
- Bobbin	Sumitomo Bakelite Co Ltd	PM-9820	Phenolic, rated V-0, max 150 degree C, measured min 0.8 mm thick	QMFZ2	UL
- Bobbin (alternate)	Plastics Co Ltd	T375J	Phenolic, rated V-0, max 150 degree C, measured min 0.8 mm thick	QMFZ2	UL
Bleeder Resistor (R1, R2)	--	--	Each Rated 1.5M ohm, 1/4 W, in series, SMD type.	--	--
X-Capacitor (CX1) (Optional)	Cheng Tung Industrial Co Ltd	CTX	Max. 0.22 uF, min. 275 Vac, 100 degree C, X1 or X2 type	FOWX2	UL
X-Capacitor (CX1) (Optional) (Alternate)	Tenta Electric Industrial Co Ltd	MEX	Max. 0.22 uF, min. 275 Vac, 100 degree C, X1 or X2 type.	FOWX2	UL
X-Capacitor (CX1) (Optional) (Alternate)	Ultra Tech Xiphi Enterprise Co Ltd	HQX	Max. 0.22 uF, min. 275 Vac, 100 degree C, X1 or X2 type.	FOWX2	UL
X-Capacitor (CX1) (Optional) (Alternate)	Carli Electronics Co Ltd	MPX	Max. 0.22 uF, min. 275 Vac, 100 degree C, X1 or X2 type.	FOWX2	UL
Bridge Diode (D1,D2,D3,D4)	--	--	Rated 1A, minimum 600 V.	--	--
Storage Capacitor (C1)	--	--	Rated 400 V, max 33uf, min 105 degree C, provided with integral pressure relief	--	--
Transistor (Q1)	--	--	Rated 3.5A, minimum 600 V.	--	--
Semiconductor IC (U1)	--	--	Rated 32V, 3.0mA.	--	--
Y capacitor (CY1) (Optional)	Success Electronics Co Ltd	SE	Max. 1000pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL
Y capacitor (CY1) (Optional) (Alternate)	TDK Corp	CD	Max. 1000pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL
Y capacitor (CY1) (Optional) (Alternate)	Walsin Technology Corp	AH	Max. 1000pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL
Y capacitor (CY1) (Optional) (Alternate)	Haohua Electronic Co	CT 7	Max. 1000pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL
Y capacitor (CY2) (Optional)	Success Electronics Co Ltd	SE	Max. 100pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL



Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
Y capacitor (CY2) (Optional) (Alternate)	TDK Corp	CD	Max. 100pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL
Y capacitor (CY2) (Optional) (Alternate)	Walsin Technology Corp	AH	Max. 100pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL
Y capacitor (CY2) (Optional) (Alternate)	Haohua Electronic Co	CT 7	Max. 100pF, min. 250 Vac, 125 degree C, Y1 type	FOWX2	UL
Optical Isolators (PC1)	Lite-On Technology Corp	LTV-817	Isolation: 5000 Vac, minimum 100 degree C.	FPQU2	UL
Optical Isolators (PC1) (Alternate)	Sharp Corp Electronic Components And Devices Group	PC817	Isolation: 5000 Vac, minimum 100 degree C.	FPQU2	UL
Optical Isolator (PC1) (alternate)	Everlight Electronics Co Ltd	EL817	Isolation: 5000 Vac, minimum 100 degree C.	FPQU2	UL
Optical Isolator (PC1) (alternate)	COSMO ELECTRONICS CORP	K1010	Isolation voltage minimum 3000 Vac, minimum 100 degree C.	FPQU2	UL
Transformer (T1) For models with output 5V, 6V.		XF00577	See below	--	--
Transformer (T1) For models with output 12V, 15V.		XF00578	See below	--	--
- Insulation system for Transformer (T1)*		130-1	Insulation system Class B (130 degree C)	OBJY2	UL
- Core	--	--	EE type, Ferrite, dimension 22.7mm by 6.5mm by 19.6mm	--	--
- Coil	Various	Various	130 degree C, ANSI TYPE MW28 or MW75 or MW79 or	OBMW2	UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
			MW80		
- Bobbin	Chang Chun Plastics Co., Ltd.	T375J	V-0, 150degree C, Phenolic, thickness 0.8mm minimum	QMFZ2	UL
- Bobbin (Alternate)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, 150degree C, Phenolic, thickness 0.71mm minimum	QMFZ2	UL
- Tubing/Sleeving	Great Holding Industrial Co. Ltd.	TFL, TFS, TFT	Rated 200 degree C, 600V max.	YDPU2	UL
- Triple Insulated Wire	Great Leoflon Industrial Co. Ltd.	TRW-B	130 degree C	OBJT2	UL
- Varnish	John C. Dolph Co.	BC-346A	Rated minimum 200 degree C.	OBOR2	UL
- Varnish (Alternate)	P D GEORGE/VIKING	V1630FS	Rated minimum 130 degree C.	OBOR2	UL
- Insulation Tape	3M Company	1350T-1	130 degree C.	OANZ2	UL
- Insulation Tape (Alternate)	3M Company	1350F(#)	130 degree C.	OANZ2	UL
- Insulation Tape (Alternate)	3M Company	44	130 degree C.	OANZ2	UL
- Insulation Tape (Alternate)	Bondtec Pacific Co., Ltd.	370S	130 degree C.	OANZ2	UL
Internal Glue Materials	Various	Various	Rated V-2 minimum.	QMFZ2	UL
Internal Plastic Part Materials	Various	Various	Rated V-2 minimum.	QMFZ2	UL
Output cord	Various	Various	FEP, PTFE, PVC, TFE, Neoprene, Polyimide, VW-1 or FT-1, max 3.05 m in length, min 300 V, 80 degree C	AVLV2	UL
PWB	Various	Various	V-1 or better, minimum 130 degree C.	ZPMV2	UL
Label	Various	Various	Minimum 75 degree C. if maximum surface temperature not specified.	PGDQ2, PGJI2	UL
Power supply cord (Optional)	Various	Various	No. 18 AWG, Detachable, min. 1.5 m to max. 4.5 m (14.76ft.)long, type SVT or SJT or SPT-2 flexible cord, rated min. if one end terminated in NEMA 1-15P; rated minimum if one end terminated in NEMA 2-15P	ZJCZ and RTRT and AXUT, or ELBZ	UL

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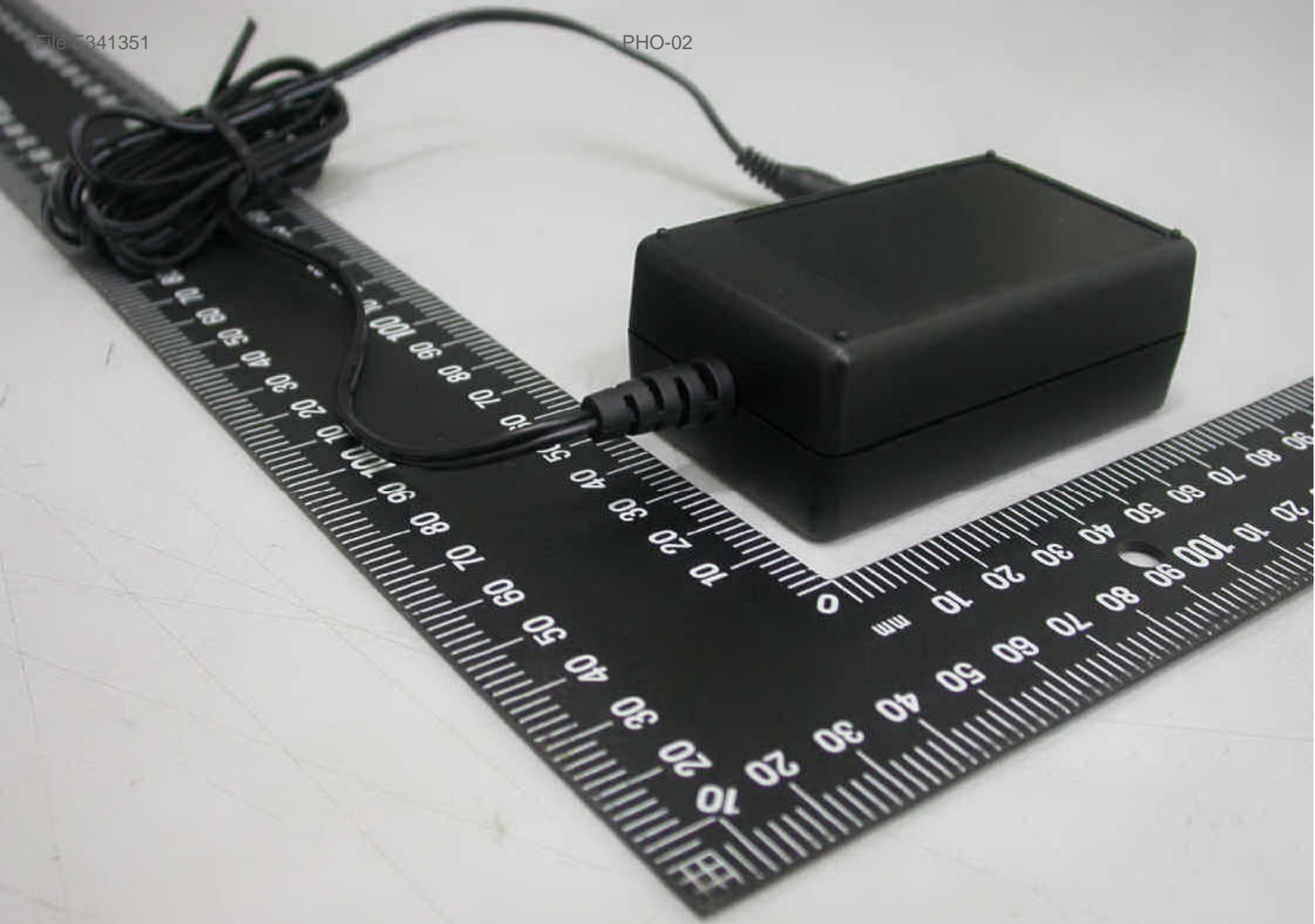
E341351-A44-UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
Heat Sink (HS2) only for models with output 5V, 6V.	--	--	Aluminum, see enclosure 4-02 for details	--	--

## Enclosures

<u>Type</u>	<u>Supplement Id</u>	<u>Description</u>
Photographs	3-01	Overall View - 1
Photographs	3-02	Overall View - 2
Photographs	3-03	Internal View - 1 for models with output 5V, 6V.
Photographs	3-04	Internal View - 2 for models with output 12V, 15V.
Photographs	3-05	Component side of PWB for models with output 5V, 6V.
Photographs	3-06	Solder side of PWB 3A-165DA05 for models with output 5V, 6V.
Photographs	3-07	Component side of PWB for models with output 12V, 15V.
Photographs	3-08	Solder side of PWB for models with output 12V, 15V.
Diagrams	4-01	Enclosure Dimension
Diagrams	4-02	Heat Sink (HS2) only for models with output 5V, 6V.
Diagrams	4-03	Transformer T1 (XF00577) for models with output 5V, 6V.
Diagrams	4-04	Transformer T1 (XF00578) for models with output 12V, 15V.
Diagrams	4-05	Noise Filter (NF1) spec.
Schematics + PWB	5-01	PWB Layout
Manuals		
Miscellaneous	7-01	Model difference list
Miscellaneous	7-02	Revised model names list









































Model Name	Output voltage	Output current	Resistor R17(ohm)	Resistor R18(ohm)	Transformer
GT-41082-WWWV-XX-T2 series , WW is the rated output wattage designation, with a maximum value of "18"; VV is the standard rated output voltage designation, with a maximum value of "15"; -XX is optional or blank and denotes the output voltage differentiator, subtracting or adding XX volts from standard output voltage VV in 0.1V increments	IP:100-240 Vac, 50-60 Hz, 0.5 A				
GT-41082-1505-T2	5	3	6.65K±1%	6.2K±1%	XF00577
GT-41082-1805-T2	5	3.6	6.65K±1%	6.2K±1%	XF00577
GT-41082-1806-T2	6	3	8.25K±1%	5.6K±1%	XF00577
GT-41082-1812-T2	12	1.5	8.25K±1%	2.15K±1%	XF00578
GT-41082-1815-T2	15	1.2	12.7K±1%	2.49K±1%	XF00578





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Test Record

## **Test Record No. 1**

Tests on all models are not required due to transferring file from Applicant Globtek (Suzhou) Co Ltd., File E336418, Vol. X7, E336418-A51.

## Test Record No. 2

The manufacturer submitted representative production sample of Switching Power Adapter, Model GT-41082-1815-T2.

Test conducted in Model GT-41082-1815-T2 was considered as representative of the whole series in this report.

Only limited test was considered necessary for Model GT-41082-1815-T2 due to identical to previous tested construction except for upgrading to Information Technology Equipment, CAN/CSA-C22.2 No. 60950-1-07, Second Edition, including revisions through revision date March 27, 2007 & UL 60950-1, Second Edition, including revisions through revision date March 27, 2007.

The following tests were conducted:

Test	Testing Location/Comments
End Product Reference Page	
General Guidelines	
Power Supply Reference Page	
Capacitance Discharge (2.1.1.7)	

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

The following supplements are provided as a part of this Test Record. NOTE: These supplements are only available to the Applicant via the CDA system.

<u>Type</u>	<u>Supplement Id</u>	<u>Description</u>
Datasheet	2-01	Datasheet
Attachment	2-02	CRD

Project No. 11CA65162  
 Compliance  
 Review  
 Conducted  
 by:

File E341351

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Paul Wan


Date 2012-01-06

Printed Name

Signature

When a measurement is needed to determine compliance with a clause the actual measured value must be recorded in the space provided. A simple 'Yes' / 'No' response is not sufficient. (See 'UL Certification Program - Work Instructions for Completion of Construction Review Datasheets (CRD) For C-UL Mark' (00-OP-W0038) for details).

## CONSTRUCTION COMPLIANCE REVIEW RECORD

## Sample Identification -

Sample Card No.	Date Received	Sample No.	Manufacturer, Product Identification and Ratings
1277484	2012-01-03	S1	GLOBTEK (HONG KONG) LTD Switching Power Adapter, Model GT-41082-1815-T2 I/P: 100-240 Vac, 50-60 Hz, 0.5 A O/P: 15Vdc, 1.2A

## Measurement Instrument Information -

Inst. ID No.	Instrument Type	Function/Range	Last Cal. Date	Next Cal. Date
Please see LPM				

The following additional information is required when using client's or rented equipment, or when a UL ID Number for an instrument number is not used. The Inst. ID No. below corresponds to the Inst. ID No. above.

Inst. ID No.	Make/Model/Serial Number/Asset No.
-	-

Measurement instrument information is recorded on UL's Laboratory Project Management (LPM) database. (This statement may be selected only if CRDs are completed at a UL facility)

