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REPORT

on

Power Supplies for Use with Audio/Video, Information and Communication Technology Equipment

GLOBTEK (HONG KONG) LTD
KOWLOON HONG KONG

UL TEST REPORT AND PROCEDURE	
Standard:	UL 62368-1, 2nd Edition, 2014-12-01 (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements) CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12 (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements)
Certification Type:	Listing
CCN:	QQJQ, QQJQ7 Power Supplies for use in Audio/Video, Information and Communication Technology Equipment)
Complementary Certification CCN	N/A
Product:	ICT/ITE POWER SUPPLY
Model:	GT-46060-WWVV-X.XX-W2******series WW is the standard output wattage, with a maximum value of "06". VV is the standard rated output voltage designation, with a maximum value of "24"; which can be 05,06,09,12,15,18,24. -X.XX is optional, which can be "-0.01" to "-5.99", denote the output voltage differentiator, subtracting X.XX volts from standard output voltage VV in 0.01V increments, the actual output voltage rang is 5-24V, blank is to indicate the no voltage different. -W2~~Z~~ can be optional denotes type of fixed plug models , when it is blank, means replaceable plug models. Each * = 0-9 or A-Z or ()[] - or blank for marketing purposes, not affect safety.
Rating:	I/P: 100-240Vac, 50-60Hz or 50/60Hz, 0.3A O/P: See Model description of general product information for details
Applicant Name and Address:	GLOBTEK (HONG KONG) LTD UNIT 1402, BENSON TOWER 74 HUNG TO RD KWUN TONG KOWLOON HONG KONG

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.

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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

i. 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

C. Listing Mark/Recognized Component Mark Data Page - 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

The product is a Direct plug-in equipment for Class II intended for use with Audio/video, information and communication technology equipment, there electronic components mounted on PWB, and housed in a thermoplastic enclosure by ultrasonic welding.

There are two PCB type provided, one is without L1 as define PCB type A, another one is with LF1 as define PCB type B

Model Differences

All models are same except input means (Replaceable or Fixed plug), output rating, secondary winding of transformer (T1), HS2 and some component rating, see table 4.1.2 and below.

Models GT-46060-WWVV-X.XX-W2Z, where -W2Z denotes type of fixed plug, for North American -W2Z can be optional, when it is blank, means replaceable plug models.

Model	Output Voltage(V)	
GT-46060-WW05-W2Z******	5	
GT-46060-WW06-X.XX-W2Z******	5.01-6	
GT-46060-WW09-X.XX-W2Z******	6.01-8.99	
GT-46060-WW12-X.XX-W2Z******	9-12	
GT-46060-WW15-X.XX-W2Z******	12.01-15	
GT-46060-WW18-X.XX-W2Z******	15.01-18	
GT-46060-WW24-X.XX-W2Z******	18.01-24	

Test Item Particulars (NOT FOR FIELD REPRESENTATIVE'S USE)

Classification of installation and use by . :	☒ Ordinary person ☐ Instructed person ☐ Skilled person
Supply Connection..... :	☒ pluggable equipment ☒ type A ☐ type B ☒ direct plug-in ☐ permanent connection ☐ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Equipment mobility..... :	☐ movable ☐ hand-held ☒ transportable ☐ stationary ☐ for building-in ☒ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Fundamental Frequency..... :	☒ 50/60 Hz ☐ 50 Hz ☐ 60 Hz ☒ other 50-60 Hz ☐ N/A
Class of equipment ..... :	☐ Class I ☒ Class II ☐ Class III ☐ Not classified ☐ Class II with functional earthing
Access location ..... :	☐ restricted access location ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class ..... :	☒ IP X0 ☐ IP ____
Tested for IT power systems ..... :	☐ Yes ☒ No
IT testing, phase-phase voltage (V) ..... :	☐ ____ ☒ N/A
Altitude during operation (m) ..... :	☒ Up to 2,000 ☐ Up to 5,000
Altitude of test laboratory (m) ..... :	☒ Less than 2,000 ☐ Approximately _____
Mass of equipment (kg) ..... :	0.086 max.

Technical Consideration (NOT FOR FIELD REPRESENTATIVE'S USE)

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40 degree C
- The means of connection to the mains supply is: Pluggable A (direct plug-in type)
- The product is intended for use on the following power systems: TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- The equipment disconnect device is considered to be: Plug (direct plug-in type)
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

Engineering Conditions of Acceptability (NOT FOR FIELD REPRESENTATIVE'S USE)

N/A

Additional Information

N/A

Additional Standard

The product fulfils the requirements of: N/A

Markings, instructions and instructional safeguards	
Clause Title	**Marking or Instruction Details**
Equipment identification marking – Manufacturer identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number.
Equipment identification marking – model identification	Model Number
Equipment rating marking –ratings	Input Ratings (voltage, frequency, current) Output Ratings (voltage, dc, current)
Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.
Power rating - Class II symbol	Symbol for Class II construction  (60417-2-IEC-5172)

Special Instructions to UL Representative

For transformer test - 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 Production-Line Testing Requirements be conducted at the component manufacturer.

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	T1	N/A	Primary to Secondary	2829	4000	1

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

All models

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

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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:

N/A

Sample and Test Specifics for Follow-Up Tests at UL

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

4.1.2	**TABLE: list of critical components**					Pass
Object/part or Description	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
01. Enclosure and plug holder material	SABIC INNOVATIVE PLASTICS US L L C	915R(GG)	Two pieces construction, secured together by ultrasonic welding, rated V-0 or better, 120 degree C min. Minimum 1.7 mm thickness. See Illustration 1 and 2 for dimensions	QMFZ2	UL	
01a. Enclosure and plug holder material (Alternate)	SABIC JAPAN L L C	945 (GG)	Two pieces construction, secured together by ultrasonic welding, rated V-0 or better, 120 degree C min. Minimum 1.7 mm thickness. See Illustration 1 and 2 for dimensions	QMFZ2	UL	
01b. Enclosure and plug holder material (Alternate)	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD	LUPOY EF-1006F(m)	Two pieces construction, secured together by ultrasonic welding, rated V-0 or better, 115 degree C min. Minimum 1.7 mm thickness. See Illustration 1 and 2 for dimensions	QMFZ2	UL	
01c. Enclosure and plug holder material (Alternate)	COVESTRO DEUTSCHLAND AG [PC RESINS]	FR6005 + (z)	Two pieces construction, secured together by ultrasonic welding, rated V-0 or better, 105 degree C min. Minimum 1.7 mm thickness. See Illustration 1 and 2 for dimensions	QMFZ2	UL	
01d. Enclosure and plug holder material (Alternate)	SILVER AGE ENGINEERING PLASTICS (DONGGUAN) CO LTD	PC2330	Two pieces construction, secured together by ultrasonic welding, rated V-0 or better, 115 degree C min. Minimum 1.7 mm thickness. See	QMFZ2	UL	

			Illustration 1 and 2 for dimensions			
02. Input Blades	Various	Various	Solid copper, non-grounding, non-polarized, NEMA 1-15P configuration, integrally moulded on Bottom Enclosure. Spaced minimum 5.1 mm from perimeter edge of Enclosure.	--	--	
03. Label (optional)	Various	Various	Minimum 65 degree C. if maximum surface temperature not specified.	PGDQ2, PGJI2	UL	
04. Output Cable	Various	Various	Rated Minimum 30 V, Minimum 80 degree C, Maximum 3.05 m long, marked VW-1 or FT-1. Terminates with a polarized connector outside enclosure.	AVLV2 ZJCZ	UL	
05. Output Cable Strain Relief	Various	Various	PVC bushing integrally molded on output cord. See Illustration 3 for dimensions details.	--	--	
06. PWB	Various	Various	V-0 or better, minimum 130 degree C.	ZPMV2	UL	
07. Fuse Resistor (RF1)	Various	Various	2 ohms, 1W	--	--	
08. Varistor (MOV1) (optional)	CENTRA SCIENCE CORP	CNR 14V511K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08a. Varistor (MOV1) (optional) (Alternate)	CENTRA SCIENCE CORP	CNR 10V471K, CNR 14D471K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08b. Varistor (MOV1) (optional) (Alternate)	CENTRA SCIENCE CORP	CNR 14D511K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08c. Varistor (MOV1) (optional) (Alternate)	JOYIN CO LTD	10N511K, 10N471K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08d. Varistor (MOV1) (optional) (Alternate)	JOYIN CO LTD	14N471K, 14N511K, 14S511K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08e. Varistor (MOV1) (optional) (Alternate)	THINKING ELECTRONIC INDUSTRIAL CO LTD	TVR 10471K, TVR 10511K, TVR 10471-V	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	

08f. Varistor (MOV1) (optional) (Alternate)	THINKING ELECTRONIC INDUSTRIAL CO LTD	TVR 14471K, TVR 14511K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08g. Varistor (MOV1) (optional) (Alternate)	CERAMATE TECHNICAL CO LTD	GNR 14D471K, GNR 14D511K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08h. Varistor (MOV1) (optional) (Alternate)	CERAMATE TECHNICAL CO LTD	GNR10D471K	Rated minimum 300 Vac, minimum 385 Vdc.			
08i. Varistor (MOV1) (optional) (Alternate)	SUCCESS ELECTRONICS CO LTD	SVR10D471K, SVR10D511K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
08j. Varistor (MOV1) (optional) (Alternate)	SUCCESS ELECTRONICS CO LTD	SVR14D471K, SVR14D511K	Rated minimum 300 Vac, minimum 385 Vdc.	VZCA2	UL, C-UL	
09. Bridge Diode (BD1)	--	--	Rated minimum 1A, minimum 800 V.	--	--	
10. Storage Capacitor (C1)	--	--	Rated 400 V, max. 4.7uF, min. 105 degree C, provided with integral pressure relief	--	--	
11. Storage Capacitor (C2)	--	--	Rated 400 V, max. 6.8uF, min. 105 degree C, provided with integral pressure relief	--	--	
12. Transformer (T1)	ENG Electric Co Ltd	XF00919	Class B, See Illustration 4 for construction details.	--	--	
12. Transformer (T1)	ENG Electric Co Ltd	XF00930	Class B, See Illustration 5 for construction details.	--	--	
12. Transformer (T1)	ENG Electric Co Ltd	XF00949	Class B, See Illustration 6 for construction details.	--	--	
12-01. Insulation system for Transformer (T1)	ENG Electric Co., Ltd.	ENG130-1	Insulation system Class B (130 degree C, adapted form GREAT LEOFLON INDUSTRIAL CO LTD, Type GH-130)	OBJY2	UL	
12-02. Core	--	--	EE type, Ferrite, dimension 13.5 mm by 12.5mm by 6.0mm	--	--	
12-03. Coil	--	--	Min. 130 degree C	OBMW2	UL	

12-04. Bobbin	Chang Chun Plastics Co., Ltd.	T375J	V-0, 150 degree C, Phenolic, thickness 0.8mm minimum	QMFZ2	UL	
12-04a. Bobbin (Alternate)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, 150 degree C, Phenolic, thickness 0.71mm minimum	QMFZ2	UL	
12-05. Tubing/Sleeving	Great Holding Industrial Co. Ltd.	TFL, TFS, TFT	Rated 200 degree C, VW-1, 600V max.	YDPU2	UL	
12-06. Triple Insulated Wire	Great Leoflon Industrial Co. Ltd.	TRW(B)	130 degree C. (Used in secondary winding)	OBJT2	UL	
12-07. Varnish	John C. Dolph Co.	BC-346A	Rated minimum 200 degree C.	OBOR2	UL	
12-07a. Varnish (Alternate)	Elantas Electrical Insulation Elantas Pdg Inc	V1630FS	Rated minimum 130 degree C.	OBOR2	UL	
12-08. Insulation Tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-(#), 1350T-1	130 degree C.	OANZ2	UL	
12-08. Insulation Tape (alternate)	BONDTEC PACIFIC CO LTD	370S	130 degree C.	OANZ2	UL	
13. Internal Glue Materials	--	--	Rated V-2 minimum.	QMFZ2	UL	
14. Internal Plastic Part Materials	--	--	Rated minimum V-2.	QMFZ2	UL	
15. Current sense resistor (RS8)	--	--	2.2 ohm, 1/4W.	--	--	
16. Current sense resistor (RS9)	--	--	2.4 ohm, 1/4W.	--	--	
17. Bridge Capacitors (CY1) (optional)	Success Electronics Co Ltd	SE, SB, SF	max. 1000pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
17a. Bridge Capacitors (CY1) (optional) (Alternate)	TDK CORPORATION	CD	rated max. 1000pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
17b. Bridge Capacitors (CY1) (optional) (Alternate)	Walsin Technology Corp	AH	max. 1000pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	

17c. Bridge Capacitors (CY1) (optional) (Alternate)	Haohua Electronic Co	CT 7	rated max. 1000pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
17e. Bridge Capacitors (CY1) (optional) (Alternate)	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD	YOB YOF YOE	rated max. 1000pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
17e. Bridge Capacitors (CY1) (optional) (Alternate)	JUHONG ELE CO	JB	rated max. 1000pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
17f. Bridge Capacitors (CY1) (optional) (Alternate)	MURATA MFG CO LTD	KX	rated max. 1000pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
18. Choke (LF1) (Optional)	Various	NF00117	Open type construction. Rated 105°C, See Illustration 7 for details.	--	--	
18a. Core (LF1)	Various	Various	Ferrite, toroidal, Illustration 7 for details.	--	--	

ENCLOSURES

Type	Supplement ID	Description
Figures	Figure - 1	External View
Figures	Figure - 2	External View (Fixed plug)
Figures	Figure - 3	Internal view (Fixed plug)
Figures	Figure - 4	External View (Replaceable plug)
Figures	Figure - 5	Internal view (Replaceable plug)
Figures	Figure - 6	Internal View (PCB type A)
Figures	Figure - 7	PWB top View (PCB type A)
Figures	Figure - 8	PWB rear View (PCB type A)
Figures	Figure - 9	Internal View (PCB type B)
Figures	Figure - 10	PWB top View (PCB type B)
Figures	Figure - 11	PWB rear View (PCB type B)
Illustrations	Illustration - 1	Enclosure drawing (Fixed plug)
Illustrations	Illustration - 2	Enclosure drawing (Replaceable plug)
Illustrations	Illustration - 3	Strain Relief drawing
Illustrations	Illustration - 4	Transformer (T1)
Illustrations	Illustration - 5	Transformer (T1) -
Illustrations	Illustration - 6	Transformer (T1) -
Illustrations	Illustration - 7	Choke (LF1)
Illustrations	Illustration - 8	PWB Layout (type A)
Illustrations	Illustration - 9	PWB Layout (type B)