

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
<b>Certification Type:</b>	Listing
<b>CCN:</b>	QQJQ, QQJQ7 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Complementary CCN:</b>	N/A
<b>Product:</b>	ICT/ITE POWER SUPPLY
<b>Model:</b>	GT-46200-***-T** The 1st "***" denotes the rated output wattage, with a maximum value of "20", The 2nd "***" denotes the standard rated output voltage designation, with a value of "05" and "06", The 3rd "***" is optional deviation, subtracted from standard output voltage, which can be "-0.05" to "-0.99" with interval of 0.01, or blank to indicate no voltage different, The 2nd and 3rd together denote the output voltage, with a range of 5-5.95Vdc The 4th "***" can be 3 or 3A, 3 means C14 inlet type, 3A means C6 inlet type. The last * denote any six character = 0-9 or A-Z or ( ) [ ] or – or blank for marketing purposes.
<b>Rating:</b>	Input: 100-240V~, 50/60Hz or 50-60Hz, 0.5A Output : 5-5.95Vdc, Max 4.0A, Max. 20W See model differences for output rating
<b>Applicant Name and Address:</b>	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.
- 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

The product is a Class I SWITCH-MODE POWER SUPPLY intended to be used for information technology equipment or audio/video equipment, all electronic components are mounted on PWB and housed in a plastics enclosure which is secured by ultrasonic welding, output by non-detachable wire

### Model Differences

The models GT-46200-\*05-T3 and GT-46200-\*06\*-T3A are identical to each other except for type designation, output rating and type of appliance inlet. Where x=B or N, B stand for C14 inlet type, N stand for C6 inlet type. 3 means C14 inlet type, 3A means C6 inlet type.

Model	Output Voltage	Max.Output Current	Max.Output Wattage
GT-46200-*05-T**	5V	4.0A	20W
GT-46200-*06*-T**	5.01-5.95V	3.59A	18W
The models 6A-201Dx05 GT-46200-2005-T3 and 6A-201Dx06 GT-46200-1806-0.05-T3A are identical to each other except for type designation, output rating and type of appliance inlet. Where x=B or N, B stand for C14 inlet type, N stand for C6 inlet type. T3 means C14 inlet type, T3A means C6 inlet type.			
Model	Output Voltage	Max.Output Current	Max.Output Wattage
GT-46200-*05-T**	5V	4.0A	20W
GT-46200-*06*-T**	5.01-5.95V	3.59A	18W

### Test Item Particulars

Classification of use by	Ordinary person Children likely to be present
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	pluggable equipment type A - appliance coupler
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	movable transportable
Over voltage category (OVC)	OVC II

Class of equipment	Class I
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	40
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	approx.0.17 Kg

#### Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 40°C
- 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 : Appliance inlet
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : Output terminal
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

#### Additional Information

Revision: 4789507340

Models GT-46200-\*\*\*-T\*\* copy from the File E163743 Vol. X9 A6006 to E341351-A6004 Vol. X10.  
Model name change from 6A-201Dx05, 6A-201Dx06 to GT-46200-\*\*\*-T\*\*.

#### Additional Standards

The product fulfills the requirements of: --

#### Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Fuses – replaceable by ordinary or instructed person	(component ID:F1), "Ratings (T2A, 250Vac)", (component ID:F102), "Ratings (T3.15A, 250V)",and (symbol of required characteristics) located on or adjacent to fuse or fuseholder
LPS(optional)	Unit may be optionally marked with "Limited Power Source", "L.P.S" or "LPS".

Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)" , polarity
<b>Special Instructions to UL Representative</b> [X] 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.	

<b>BD1.0</b>	<b>TABLE: Production-Line Testing Requirements</b>					
<b>BD1.1</b>	<b>Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.</b>					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
All Models	Transformer	N/A	Primary to secondary	4000Vpeak	4000Vdc	Min. 1s
<b>BD1.2</b>	<b>Earthing Continuity Test Exemptions – This test is not required for the following models:</b>					
	None					
<b>BD1.3</b>	<b>Electric Strength Test Exemptions – This test is not required for the following models:</b>					
	None					
<b>BD1.4</b>	<b>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.</b>					
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<b>BE1.0</b>	<b>Sample and Test Specifics for Follow-Up Tests at UL</b>				
Model	Component	Material	Test	Sample (s)	Test Specifics
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4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
01. Label (optional)	Interchangeable	Interchangeable	Minimum 70 degree C, suitable for its application surface.	PGDQ2/8, PGJ12/8	UL	
01a. Label (Alternate)	--	--	Required markings are molded, permanently ink stamped, silkscreened or laser carved on plastic enclosure.	--	--	
02. Enclosure	SABIC JAPAN L L C	945 (GG)	Rated V-0, 120 degree C. Minimum 2.0 thickness. Two parts secured together by ultrasonic welding. See supplementary 7-01 for details.	QMFZ2	UL E207780	
02a. Enclosure (Alternate)	SABIC INNOVATIVE PLASTICS US L L C	915R(GG)	Rated V-0, 120 degree C. Minimum 2.0 thickness. Two parts secured together by ultrasonic welding. See supplementary 7-01 for details.	QMFZ2	UL E121562	
02b. Enclosure (Alternate)	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD	LUPOY EF- 1006F(m)	Rated V-0, 115 degree C. Minimum 2.0 thickness. Two parts secured together by ultrasonic welding. See supplementary 7-01 for details.	QMFZ2	UL E248280	

02c. Enclosure (Alternate)	COVESTRO DEUTSCHLAND AG [PC RESINS]	FR6005 + (z)	Rated V-0, 105 degree C. Minimum 2.0 thickness. Two parts secured together by ultrasonic welding. See supplementary 7-01 for details.	QMFZ2	UL E41613	
02d. Enclosure (Alternate)	SILVER AGE ENGINEERING PLASTICS (DONGGUAN) CO LTD	PC2330	Rated V-0, 115 degree C. Minimum 2.0 thickness. Two parts secured together by ultrasonic welding. See supplementary 7-01 for details.	QMFZ2	UL E225348	
03. AC inlet (For Models GT-46200-***-T3*)	TECX-UNIONS TECHNOLOGY CORP	TU-301-SP	10A, 250Vac min. 70 degree C (Standard sheet C14)	AXUT2	UL E220004	
03a. AC inlet (For Models GT-46200-***-T3*) (Alternate)	ZHEJIANG LECI ELECTRONICS CO LTD	DB-14	10A, 250Vac min. 70 degree C (Standard sheet C14)	AXUT2	UL E302229	
03b. AC inlet (For Models GT-46200-***-T3*) (Alternate)	ECHO ELECTRIC CO LTD	AC-P01, AC-P03, AC-P06, AC-P07	10A, 250Vac min. 70 degree C (Standard sheet C14)	AXUT2	UL E101143	
03c. AC inlet (For Models GT-46200-***-T3*) (Alternate)	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A01-003JTA	10A, 250Vac min. 70 degree C (Standard sheet C14)	AXUT2	UL E225980	
03d. AC inlet (For Models GT-46200-***-T3*) (Alternate)	SUN FAIR ELECTRIC WIRE & CABLE (HK) CO LTD	S-03	10A, 250Vac min. 70 degree C (Standard sheet C14)	AXUT2	UL E226643	
04. AC inlet (For Models GT-46200-***-T3A*)	TECX-UNIONS TECHNOLOGY CORP	TU-333	2.5A, 250Vac, min. 70 degree C (Standard sheet C6)	AXUT2	UL E220004	
04a. AC inlet (For Models GT-46200-***-T3A*) (Alternate)	ZHEJIANG LECI ELECTRONICS CO LTD	DB-6	2.5A, 250Vac min. 70 degree C (Standard sheet C6)	AXUT2	UL E302229	



04b. AC inlet (For Models GT-46200-***-T3A*) (Alternate)	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A04-001, ST-A04-002	2.5A, 250Vac min. 70 degree C (Standard sheet C6)	AXUT2	UL E225980	
04c. AC inlet (For Models GT-46200-***-T3A*) (Alternate)	SUN FAIR ELECTRIC WIRE & CABLE (HK) CO LTD	S-02	2.5A, 250Vac min. 70 degree C (Standard sheet C6)	AXUT2	UL E226643	
05. Earthing wire	Interchangeable	Interchangeable	VW-1, Min. 300V, min. 105 degree C, min. 18AWG, green-and-yellow, one end hook welding on AC inlet, the other end fixed to PWB by soldering and glue or soldering with crimp metal soldering pin.	AVLV2	UL	
06. Heat-shrinkable tube (used for earthing wire)	interchangeable	Interchangeable	VW-1, Minimum 300V, 125 degree C	YDPU2	UL	
07. PWB	Interchangeable	Interchangeable	V-1 or better, minimum 130 degree C.	ZPMV2	UL	
08b.Fuse (F1) (Alternate)	SUZHOU WALTER ELECTRONIC CO LTD	2010	T2AL, 250Vac	JDYX2	UL E56092	
08c.Fuse (F1) (Alternate)	CONQUER ELECTRONICS CO LTD	MST	T2AL, 250Vac	JDYX2	UL E82636	
08d.Fuse (F1) (Alternate)	HOLLYLAND CO LTD	5ET	T2AL, 250Vac	JDYX2	UL E156471	
08e.Fuse (F1) (Alternate)	COOPER BUSSMANN LLC	SS-5	T2AL, 250Vac	JDYX2	UL E19180	
08f.Fuse (F1) (Alternate)	BEL FUSE INC	RST	T2AL, 250Vac	JDYX2	UL E20624	

09. X-Cap. (CX1) (Optional)	ULTRA TECH XIPHI ENTERPRISE CO LTD	HQX	Min. 250Vac, max. 0.22uF±20%uF, min.100 degree C, X2 type	FOWX2	UL E183780	
09a. X-Cap. (CX1) (Optional) (Alternate)	TENTA ELECTRIC INDUSTRIAL CO LTD	MEX	Min. 250Vac, max. 0.22uF±20%uF, min.100 degree C, X1 or X2 type	FOWX2	UL E222911	
09b. X-Cap. (CX1) (Optional) (Alternate)	CHENG TUNG INDUSTRIAL CO LTD	CTX	Min. 250Vac, max. 0.22uF±20%uF, min.100 degree C, X1 or X2 type	FOWX2	UL E193049	
09c. X-Cap. (CX1) (Optional) (Alternate)	JOEY ELECTRONICS (DONG GUAN) CO LTD	MPX	Min. 250Vac, max. 0.22uF±20%uF, min.100 degree C, X1 or X2 type	FOWX2	UL E216807	
09d. X-Cap. (CX1) (Optional) (Alternate)	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD	MPX/MKP	Min. 250Vac, max. 0.22uF±20%uF, min.100 degree C, X1 or X2 type	FOWX2	UL E357475	
09e. X-Cap. (CX1) (Optional) (Alternate)	CARLI ELECTRONICS CO LTD	MPX	Min. 250Vac, max. 0.22uF±20%uF, min.100 degree C, X2 type	FOWX2	UL E120045	
10. Bleeder resistor (R1, R2)	TZAI YUAN ENTERPRISE CO LTD	HSMD, SMD	Each max. 2.0Mohm, min. 1/4W	AZSQ2	UL E354677	
10a. Bleeder resistor (R1, R2) (Alternate)	PROSPERITY DIELECTRICS CO LTD	FVS06, TF12V, FVS20, TF20V, FVS25, TF25V	Each max. 2.0Mohm, min. 1/4W	AZSQ2	UL E358325	
10b. Bleeder resistor (R1, R2) (Alternate)	Yageo Corporation	RV1206	Each max. 2.0Mohm, min. 1/4W	--	Test in the unit	
12. Bridge Diode (DB1)	Interchangeable	Interchangeable	Minimum 2A , Minimum 600V	--	--	

13. Ripple Capacitor (C1)	Interchangeable	Interchangeable	Each maximum 47uF, minimum 400V, 105 degree C.	--	--	
14. MOSF (Q1)	Interchangeable	Interchangeable	Minimum 4A , Minimum 600V	--	--	
15. Current sensor resistor (R10)	Interchangeable	Interchangeable	Minimum 0.91 ohm , Minimum 1W	--	--	
16. Line choke(NF1) (Optional)	Interchangeable	Interchangeable	Minimum 130 degree C, See supplement 4-02 for detail.	--	--	
16-01. Magnet wire	Interchangeable	Interchangeable	Minimum 130 degree C	OBMW2	UL E225143	
16-02. Core	Interchangeable	Interchangeable	Ferrite	--	--	
16-03. Bobbin (Alternate)	Interchangeable	Interchangeable	Phenolic, V-0, 150 degree C.	QMFZ2	UL	
16-04. Insulation tape (Alternate)	Interchangeable	Interchangeable	130 degree C	OANZ2	UL	
17. Bridge - capacitor (CY1, CY2) (Optional)	SUCCESS ELECTRONICS CO LTD	SE, SB, SF, SL	CY1 maximum 1000pF, CY2 maximum 100pF, minimum 250V, minimum 125 degree C, Y1 type.	FOWX2	UL E114280	
17a. Bridge - capacitor (CY1, CY2) (Optional) (Alternate)	WALSIN TECHNOLOGY CORP	AH Series	CY1 maximum 1000pF, CY2 maximum 100pF, minimum 250V, minimum 125 degree C, Y1 type.	FOWX2	UL E146544	
17b. Bridge - capacitor (CY1, CY2) (Optional) (Alternate)	TDK CORPORATION	CD	CY1 maximum 1000pF, CY2 maximum 100pF, minimum 250V, minimum 125 degree C, Y1 type.	FOWX2	UL E37861	

17c. Bridge - capacitor (CY1, CY2) (Optional) (Alternate)	JUHONG ELE COMPANY	JB	CY1 maximum 1000pF, CY2 maximum 100pF, minimum 250V, minimum 125 degree C, Y1 type.	FOWX2	UL E253194	
17d. Bridge - capacitor (CY1, CY2) (Optional) (Alternate)	MURATA MFG CO LTD	KX	CY1 maximum 1000pF, CY2 maximum 100pF, minimum 250V, minimum 125 degree C, Y1 type.	FOWX2	UL E37921	
17e. Bridge - capacitor (CY1, CY2) (Optional) (Alternate)	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD	YOB, YOF, YOE	CY1 maximum 1000pF, CY2 maximum 100pF, minimum 250V, minimum 125 degree C, Y1 type.	FOWX2	UL E319473	
17f. Bridge - capacitor (CY1, CY2) (Optional) (Alternate)	HAOHUA ELECTRONIC CO	CT7	CY1 maximum 1000pF, CY2 maximum 100pF, minimum 250V, minimum 125 degree C, Y1 type.	FOWX2	UL E233106	
18. Opto coupler (PC1)	COSMO ELECTRONICS CORP	KPC817, K1010	Double-protection. Providing 5000Vac isolation. minimum 100 degree C.	FPQU2	UL E169586	
18a. Opto coupler (PC1) (Alternate)	EVERLIGHT ELECTRONICS CO LTD	EL817	Double-protection. Providing 5000Vac isolation. minimum 100 degree C.	FPQU2	UL E214129	
18b. Opto coupler (PC1) (Alternate)	BRIGHT LED ELECTRONICS CORP	BPC-817MXXXXXX*, BP C-817SXXXXXX*, BP C-817XXXXXX*	Double-protection. Isolation voltage 5000Vac, minimum 100 degree C.	FPQU2	UL E236324	
18c. Opto coupler (PC1) (Alternate)	SHENZHEN ORIENT COMPONENTS CO LTD	ORPC-817Mx@, ORPC-817Sx@, ORPC-817x@	Double-protection. Isolation voltage 5000Vac, minimum 100 degree C.	FPQU2	UL E323844	

18d. Opto coupler (PC1) (Alternate)	LITE-ON TECHNOLOGY CORP	LTV-817	Double-protection. Isolation voltage 5300Vac, minimum 100 degree C.	FPQU2	UL E113898	
18e. Opto coupler (PC1) (Alternate)	RENESAS ELECTRONICS CORPORATION	PS2561-1	Double-protection. Isolation voltage 5000 Vac, minimum 100 degree C.	FPQU2	UL E72422	
19. Transformer (T1)	ENG Electric Co Ltd	XF00916	Class B. See supplement 4-01 for details.	--	--	
19-01. Insulation system	ENG ELECTRIC CO LTD	ENG130-1	Class B	OBJY2	UL E308897	
19-02. Magnet wire	Interchangeable	Interchangeable	Minimum 130 degree C, MW28, MW75, MW79, MW80, MW82, MW83	OBMW2	UL E225143	
19-03. Core	Interchangeable	Interchangeable	Ferrite, two pieces provided. Overall approx. dimension 22.6 mm by 18.7mm by 5.8mm	--	--	
19-04. Bobbin	Sumitomo Bakelite Co Ltd	PM-9820	Phenolic, V-0, Minimum 0.71mm thick, 150 degree C.	QMFZ2	UL E41429	
19-04a. Bobbin (Alternate)	Chang Chun Plastics Co., Ltd.	T375J	Phenolic, V-0, Minimum 0.71mm thick, 150 degree C.	QMFZ2	UL E59481	
19-05. Insulation tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 (b), 1350T-1 (b)	130 degree C	OANZ2	UL E17385	
13-05a. Insulation tape (Alternate)	BONDTEC PACIFIC CO LTD	370S (b)	130 degree C	OANZ2	UL E175868	

19-06. Triple insulated wire	GREAT LEOFLON INDUSTRIAL CO LTD	TRW(B)	130 degree C	OBJT2	UL E211989	
19-07. Varnish	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	V1630FS	130 degree C	OBOR2	UL E75225	
19-08. Teflon tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL, TFS, TFT	Rated 200 degree C, VW-1	YDPU2	UL	
20. Output cord	Interchangeable	Interchangeable	VW-1, 80 degree C, minimum 24AWG minimum 60V, maximum 3.05 m long, and maximum 35 mm inside enclosure.	AVLV2, ZJCZ	UL	
21. Strain Relief	Interchangeable	Interchangeable	Minimum. V-1. See supplement 7-02 for detail.	QMFZ2	UL	
22. Primary Heat Sink (HS1)	--	--	Aluminum, secured to Q1 by screw and soldered to PCB, see supplement 7-03 for dimension.	--	--	
23. Secondary Heat Sink (HS2)	--	--	Aluminum, secured to Q2 by screw and soldered to PCB, see supplement 7-04 for dimension.	--	--	
24. Glue	Interchangeable	Interchangeable	V-2 or better.	QMFZ2	UL	

**Enclosures**

Type	Supplement Id	Description
Photographs	03-01	Overall view 1
Photographs	03-02	Overall view 2 (for model used with C14 inlet type)
Photographs	03-03	Overall view (for model used with C6 inlet type)
Photographs	03-04	Internal view (for model used with C14 inlet type)
Photographs	03-05	Internal view (for model used with C6 inlet type)
Photographs	03-06	PCB component side view (for model used with C14 inlet type)
Photographs	03-07	PCB component side view (for model used with C6 inlet type)
Photographs	03-08	PCB trace side view
Photographs	03-09	Transformer view 1
Photographs	03-10	Transformer view 2
Photographs	03-11	Transformer view 3
Diagrams	04-01	Transformer Spec.
Diagrams	04-02	NF1 Spec.
Schematics + PWB	05-01	PCB layout
Miscellaneous	07-01	Enclosure drawing
Miscellaneous	07-02	Strain relief
Miscellaneous	07-03	HS1
Miscellaneous	07-04	HS2