

File E341351  
Project 4789507340

September 11, 2018

REPORT

on

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

GLOBTEK (HONG KONG) LTD

KOWLOON HONG KONG

Copyright © 2018 UL LLC

UL LLC authorizes the above named company to reproduce this Report only for purposes as described in the Conclusion, provided it is reproduced in its entirety.

UL TEST REPORT AND PROCEDURE	
<b>Standard:</b>	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)
<b>Certification Type:</b>	Listing
<b>CCN:</b>	QQJQ, QQJQ7 Power Supplies for use in Audio/Video, Information and Communication Technology Equipment )
<b>Complementary Certification CCN</b>	N/A
<b>Product:</b>	ICT/ITE POWER SUPPLY
<b>Model:</b>	GT-46181-***-T** The 1 <sup>st</sup> "*" denotes the rated output wattage, with a maximum value of "18", The 2 <sup>nd</sup> "*" denotes the standard rated output voltage designation, with a value of "05" ,"09","12","15", The 3 <sup>rd</sup> "*" is optional deviation, subtracted from standard output voltage, which can be "-0.1" to "-3.9" with interval of 0.1, or blank to indicate no voltage different, The 2nd and 3rd together denote the output voltage, with a range of 5-15Vdc. The 4th "*" can be 2 means C8 inlet type. The last * denote any six character = 0-9 or A-Z or ( ) [ ] or - or blank for marketing purposes. 1)
<b>Rating:</b>	I/P: 100-240Vac, 50-60Hz or 50/60Hz, 0.5A.  O/P: 5-15V, Max 3.2A, Max 18W 1)
<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.

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

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of this page through to the end of the Engineering Conditions of Acceptability.

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

Prepared Amy Wong / Suki Kwong /  
By: Project Handler

Reviewed  
By: Brian Wong / Reviewer

**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
- 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 equipment for Class II, The equipment 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.

**Model Differences**

All models are similar to each other except for output rating, resistor (R10) rating, and transformer (T1) with secondary winding and model designation, see below the table for details.

Model	Output Voltage	Max.Output Current	Max.Output Wattage	Transformer (T1)	Resistor (R10)
GT-46181-*05-T2*	5V	3.2A	18W	XF00941	1.2 $\Omega$ 1W
GT-46181-*09*-T2*	5.1-9V	3.2A	18W	XF00941(5.1-7.5V) XF00962(7.6-9V)	1.1 $\Omega$ 1W
GT-46181-*12*-T2*	9.1-12V	1.97A	18W	XF00962(9.1-10.5V) XF00933(10.6-12V)	1.0 $\Omega$ 1W
GT-46181-*15*-T2*	12.1-15V	1.48A	18W	XF00933	1.0 $\Omega$ 1W

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

Classification of installation and use by . : ☒ Ordinary person ☐ Instructed person  
☐ Skilled person  
☒ Children likely to be present

Supply Connection..... : ☒ pluggable equipment ☒ type A ☐  
type B  
☐ 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 3,000

Altitude of test laboratory (m) ..... : ☒ Less than 2,000 ☐ Approximately \_\_\_\_

Mass of equipment (kg) ..... : Max. 0.133 kg

**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: Detachable power cord, Pluggable A
- 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 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 - replaceable by skilled person (component ID:F1)		F1, T1AL, 250V located on or adjacent to fuse or fuseholder.				
Power rating - Class II symbol		Symbol for Class II construction  (60417-2-IEC-5172)				
<b>Special Instructions to UL Representative</b>						
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.						
The test record noted above shall be submitted to the manufacturer from transformer manufacturer. The test record can be in the form of a actual test record. A stamp or sticker on the transformer or other method verifying the routine test is being completed on 100% production is also acceptable.						
<b>Production-Line Testing Requirements</b>						
<b><u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u></b>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
All models	T1	N/A	Primary to Secondary	3000	4242	1
All models	EUT	N/A	Primary to Secondary	3000	4242	1
<b><u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u></b>						
All models						
<b><u>Electric Strength Test Exemptions - This test is not required for the following models:</u></b>						
--						
<b><u>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:</u></b>						
N/A						
<b><u>Sample and Test Specifics for Follow-Up Tests at UL</u></b>						
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	SABIC INNOVATIVE PLASTICS US L L C	915R (GG)	Two pieces construction, secured together by ultrasonic welding, rated Min. V-0, min. 2.0 mm thickness, 120°C See Illustration-1 for construction details.	QMFZ2	UL	
01a. Enclosure (Alternate)	SABIC JAPAN L L C	945 (GG)	Two pieces construction, secured together by ultrasonic welding, rated Min. V-0, min. 2.0 mm thickness, 120°C	QMFZ2	UL	
01b. Enclosure (Alternate)	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD	LUPOY EF-1006F(m)	Two pieces construction, secured together by ultrasonic welding, rated Min. V-0, min. 2.0 mm thickness, 115°C	QMFZ2	UL	
01c. Enclosure (Alternate)	COVESTRO DEUTSCHLAND AG [PC RESINS]	FR6005 + (z)	Two pieces construction, secured together by ultrasonic welding, rated Min. V-0, min. 2.0 mm thickness, 105°C	QMFZ2	UL	
01d. Enclosure (Alternate)	SILVER AGE ENGINEERING PLASTICS (DONGGUAN) CO LTD	PC2330	Two pieces construction, secured together by ultrasonic welding, rated Min. V-0, min. 2.0 mm thickness, 115°C	QMFZ2	UL	
02. Appliance Inlet	TECX-UNIONS TECHNOLOGY CORP	SO-222	Rated 250 V, 2.5 A, 105 degree C min. (C8 type)	AXUT2	UL	
02a. Appliance Inlet (alternate)	SUN FAIR ELECTRIC WIRE & CABLE (HK) CO	S-01	Rated 250 V, 2.5 A, 75 degree C min. (C8 type)	AXUT2	UL	

ULS-62368-1-QQJQ-Description-2002

Form Issued: 2015-02-25

Form Page 7

Form Revised:

Copyright © 2017 UL LLC

Only those products bearing the UL Mark should be considered as being covered by UL.



	LTD					
02b. Appliance Inlet (alternate)	ZHEJIANG LECI ELECTRONICS CO LTD	DB-8	Rated 250 V, 2.5 A, 75 degree C min. (C8 type)	AXUT2	UL	
02c. Appliance Inlet (alternate)	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A03-005, ST-A03-002, ST-A03-004	Rated 250 V, 2.5 A, 75 degree C min. (C8 type)	AXUT2	UL	
03. Fuse (F1)	Various	Various	Listed, T1AL 250Vac	JDYX	UL	
03a. Fuse (F1) (Alternate)	Conquer Electronics Co Ltd	MST	Rated T1AL, 250Vac.	JDYX2	UL	
03b. Fuse (F1) (Alternate)	Ever Island Electric Co Ltd & Walter Electric	2010	Rated T1AL, 250Vac.	JDYX2	UL	
03c. Fuse (F1) (Alternate)	COOPER BUSSMANN LLC	SS-5	Rated T1AL, 250Vac.	JDYX2	UL	
03d. Fuse (F1) (Alternate)	Bel Fuse Inc	RST	Rated T1AL, 250Vac.	JDYX2	UL	
03e. Fuse (F1) (Alternate)	DONGGUAN BETTER ELECTRONIC TECHNOLOGY CO LTD	932	Rated T1AL, 250Vac.	JDYX2	UL	
03f. Fuse (F1) (Alternate)	HOLLYLAND CO LTD	5ET	Rated T1AL, 250Vac.	JDYX2	UL	
03g. Fuse (F1) (Alternate)	LITTELFUSE WICKMANN WERKE	392	Rated T1AL, 250Vac.	JDYX2	UL	
04. X-Capacitor (CX1)	Cheng Tung Industrial Co Ltd	CTX	Rated max 0.22 uF, min 250 V, X1 or X2 type, 110 degree C. (Compliance with IEC 60384-14)	FOWX2	UL	
04a. X-Capacitor (CX1) (Alternate)	Tenta Electric Industrial Co Ltd	MEX	Rated max 0.22uF, min 250 V, X1 or X2 type, 100 degree C. (Compliance with IEC 60384-14)	FOWX2	UL	
04b. X-Capacitor (CX1) (Alternate)	Ultra Tech Xiphi Enterprise Co Ltd	HQX	Rated max 0.22 uF, min 250 V, X1 or X2 type, 100 degree	FOWX2	UL	

			C. (Compliance with IEC 60384-14)			
04c. X-Capacitor (CX1) (Alternate)	CARLI ELECTRONICS CO LTD	MPX	Rated max 0.22uF, min 250 V, X1 or X2 type, 100 degree C. (Compliance with IEC 60384-14)	FOWX2	UL	
04d. X-Capacitor (CX1) (Alternate)	JOEY ELECTRONICS (DONG GUAN) CO LTD	MPX	Rated max 0.22uF, min 250 V, X1 or X2 type, 105 degree C. (Compliance with IEC 60384-14)	FOWX2	UL	
04e. X-Capacitor (CX1) (Alternate)	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD	MKP/MPX	Rated max 0.22uF, min 250 V, X1 or X2 type, 110 degree C. (Compliance with IEC 60384-14)	FOWX2	UL	
05. Bleeder Resistors (R1, R2)	TZAI YUAN ENTERPRISE CO LTD	HSMD*****, SMD*****	100k-2MOhm, min. 1/4W	AZOP2	UL	
05a. Bleeder Resistors (R1, R2) (Alternate)	PROSPERITY DIELECTRICS CO LTD	FVS06, TF12V, FVS20, TF20V, FVS25, TF25V	100k-2MOhm, min. 1/4W	AZOT2	UL	
05b. Bleeder Resistors (R1, R2) (Alternate)	Ralec Electronic Corp	RTV06, RTV12, RTV20, RTV25	100k-2MOhm, min. 1/4W	--	UL Demko	
06. Bridge Diode (BD1)	--	--	Rated 2A, minimum 600 V.	--	--	
07. Storage Capacitor (C1)	--	--	Rated 400 V, 33uF, min. 105 degree C, provided with integral pressure relief	--	--	
08. Transistor (Q1)	Various	Various	Rated 4-10A, minimum 600 V.	--	--	
09. Bridge Capacitors (CY1,CY2) (optional)	Success Electronics Co Ltd	SE, SB, SF	CY1 rated max. 2200pF, CY2 rated max. 100pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
09a. Bridge Capacitors (CY1,CY2) (optional) (Alternate)	TDK CORPORATION	CD	CY1 rated max. 2200pF, CY2 rated max. 100pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-	FOWX2	UL	

			14)			
09b. Bridge Capacitors (CY1,CY2) (optional) (Alternate)	Walsin Technology Corp	AH	CY1 rated max. 2200pF, CY2 rated max. 100pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
09c. Bridge Capacitors (CY1,CY2) (optional) (Alternate)	Haohua Electronic Co	CT 7	CY1 rated max. 2200pF, CY2 rated max. 100pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
09e. Bridge Capacitors (CY1,CY2) (optional) (Alternate)	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD	YOB YOF YOE	CY1 rated max. 2200pF, CY2 rated max. 100pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
09f. Bridge Capacitors (CY1,CY2) (optional) (Alternate)	JUHONG ELE CO	JB	CY1 rated max. 2200pF, CY2 rated max. 100pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
09g. Bridge Capacitors (CY1,CY2) (optional) (Alternate)	MURATA MFG CO LTD	KX	CY1 rated max. 2200pF, CY2 rated max. 100pF, min. 250 Vac, 125 degree C, Y1 type. (Compliance with IEC 60384-14)	FOWX2	UL	
10. Optical Isolator (PC1)	Lite-On Technology Corp	LTV-817	Isolation: 5000 Vac, minimum 100 degree C.	FPQU2	UL	
10a. Optical Isolators (PC1) (Alternate)	Everlight Electronics Co Ltd	EL817	Isolation: 5000 Vac, minimum 110 degree C.	FPQU2	UL	
10b. Optical Isolators (PC1) (Alternate)	COSMO ELECTRONICS CORP	K1010	Isolation voltage minimum 5000 Vac, minimum 115 degree C.	FPQU2	UL	
10c. Optical Isolators (PC1) (Alternate)	BRIGHT LED ELECTRONICS CORP	BPC-817XXXXXX, BPC-817MXXXXXX,	Isolation voltage minimum 5000 Vac, minimum 100 degree C.	FPQU2	UL	

		BPC-817SXXXXXX, where XXXXXX can be any alphanumeric character or blank.				
10d. Optical Isolators (PC1) (Alternate)	RENESAS ELECTRONICS CORPORATION	PS2561-1	Isolation voltage minimum 5000 Vac, minimum 100 degree C.	FPQU2	UL	
10e. Optical Isolators (PC1) (Alternate)	SHENZHEN ORIENT COMPONENTS CO LTD	ORPC-817Mx@, ORPC-817Sx@, ORPC-817x@, @ - "x" may be any letter	Isolation voltage minimum 5000 Vac, minimum 100 degree C.	FPQU2	UL	
11. Line filter (NF1) (Optional)	Various	NF00030	Open type construction. Rated 105 degree C. See Illustration-2 for construction details.	--	--	
11a Core	Various	Various	Ferrite, overall measured overall 15.6 mm by 9.8 mm by 3.0mm	--	--	
11b Coil	Various	Various	Rated minimum 105 degree C.	OBMW2	UL	
12. Transformer (T1) (for 5-7.5V)	ENG Electric Co Ltd	XF00941	Class B, See Illustration-3 for construction details.	--	--	
12. Transformer (T1) (for 7.6-10.5V)	ENG Electric Co Ltd	XF00962	Class B, See Illustration-4 for construction details.	--	--	
12. Transformer (T1) (for 10.6-15V)	ENG Electric Co Ltd	XF00933	Class B, See Illustration-5 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 (considered as primary)	--	--	EE type, Ferrite, dimension 22.8 mm by 19.2 mm by 5.7 mm	--	--	
12-03. Coil	--	--	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	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	1350F-1	130 degree C.	OANZ2	UL	
12-08a. Insulation Tape (Alternate)	3M Company	1350T-1	130 degree C.	OANZ2	UL	
12-08b. 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. Strain Relief of output cord	Various	Various	V-1 or better. Refer to Illustration-6 for strain relief dimension details.	QMFZ2	UL	
16. PWB	Various	Various	V-0 or better, minimum 105 degree C.	ZPMV2	--	
17. Label	Various	Various	Minimum 70 degree C. if maximum surface temperature not specified.	PGDQ2, PGJI2	UL	
18. Heat Sink (HS1 ) (Consideration as	Various	Various	Aluminum, minimum 2.0 mm thick. See Illustration-7 for detailed dimensions.	--	--	

Primary)						
19. Heat Sink (HS2 ) (Consideration as Secondary)	Various	Various	Aluminum, minimum 1.0 mm thick. See Illustration-8 for detailed dimensions.	--	--	
20. Current sense resistor (R10) (for GT-46181-1605-T2*)	--	--	1.1 ohm, 1W.	--	--	
20. Current sense resistor (R10) (for GT-46181-1505-T2*)	--	--	1.2 ohm, 1W.	--	--	
20. Current sense resistor (R10) (for GT-46181-*09*-T2*, GT-46181-*12*-T2*, GT-46181-*15*-T2*)	--	--	1.0 ohm, 1W.	--	--	
21. Secondary Capacitor (C8)	Various	Various	Min. 105°C	--	--	
22. Output Cord	Various	Various	Minimum 300 V, 80 degree C, maximum 3.05 m, marked VW-1 or FT-1. Suitable for external use.	AVLV2 ZJCZ	UL	

**ENCLOSURES**

<u>Type</u>	<u>Supplement ID</u>	<u>Description</u>
Figures	Figure - 1	Overall View - 1
	Figure - 2	Overall View - 2
	Figure - 3	Internal View
	Figure - 4	PWB Board View - 1
	Figure - 5	PWB Board View - 2
Illustrations	Illustration - 1	Enclosure drawing
	Illustration - 2	Line filter (NF1) spec.
	Illustration - 3	T1 spec. (p/n XF00941 for 5-7.5V)
	Illustration - 4	T1 spec. (p/n XF00962 for 7.6-10.5V)
	Illustration - 5	T1 spec. (p/n XF00933 for 10.6-15V -)
	Illustration - 6	Strain Relief Means drawing
	Illustration - 7	Heatsink HS1 drawing
	Illustration - 8	Heatsink HS2 drawing
	Illustration - 9	PWB layout
	Illustration - 10	Model difference and rating