

## UL TEST REPORT AND PROCEDURE

|                                    |   |
|------------------------------------|---|
| <b>Standard:</b>                   | UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements)<br>CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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>                    | ITE Power Supply  |
| <b>Model:</b>                      | GT-83083-WW05-USB-W2, "-USB" and "-W2" can be optional. When "-W2" is blank, denote to be with replaceable plug. ("WW" is variables; see enclosure ID7-09 for details.)   |
| <b>Rating:</b>                     | Input: 100-240Vac, 50/60Hz, 0.2A<br>Output: 5.0 Vdc, 1 A Max.   |
| <b>Applicant Name and Address:</b> | GLOBTEK (HONG KONG) LTD<br>UNIT 1402, BENSON TOWER<br>74 HUNG TO RD<br>KWUN TONG<br>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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Reviewed by: Katy Chen

**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**

Direct plug-in Switching power Supply, provided non-polarized non-detachable and detachable plug, all electronic components are mounted on PWB and housed in a plastic enclosure.

**Model Differences**

All models identical to each other except for enclosure and input plug.

Models GT-83083-WW05-USB-W2 series are non-detachable plug; with two difference in top outer casing cover, see the Enclosure Id 3-01, 3-02, 3-03 and 3-04 for details.

GT-83083-WW05-USB is with detachable plug.

GT-83083-WW05 is identical to GT-83083-WW05-USB except output wiring.

**Technical Considerations**

- Equipment mobility : direct plug-in and transportable
- 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% (Manufacturer declared)
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class II (double insulated)
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 3000 m
- Altitude of test laboratory (m) : less than 2,000 m
- Mass of equipment (kg) : Max. 0.07kg
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C

- The means of connection to the mains supply is: Pluggable A (Direct Plug-In)
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: Plug
- The product was investigated to the following additional standards: The product was evaluated to the maximum acceptable moment, center of gravity, dimensions and weight of the product in accordance with UL 1310., The blade dimension was evaluated to be complied with NEMA configurations in accordance with Wiring Devices-Dimensional Specifications, ANSI/NEMA WD6.,
- 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
- This equipment has been evaluated to be operated at altitude up to 3000 m. The clearance is multiplied by the altitude correction factors (1.14, linear interpolation used), as specified in table A.2 of IEC 60664-1: 1992 + A1: 2000 + A2: 2002


**Additional Information**

N/A

**Additional Standards**

The product fulfills the requirements of: N/A

**Markings and instructions**

| Clause Title                                     | Marking or Instruction Details  |
|--|---|
| Inter-connecting cables<br>- External detachable | Listee's Name and Part number (Marking or Instruction)  |
| Power rating - Ratings                           | Ratings (voltage, frequency/dc, current)  |
| Power rating -<br>Company identification         | Listee's or Recognized company's name, Trade Name, Trademark or File Number   |
| Power rating -<br>Model                          | Model Number  |
| Power rating -<br>Class II symbol                | Symbol for Class II construction<br><br>(60417-2-IEC-5172) |
| LPS Marking (Optional)                           | Marked "LPS" or "Limited Power Source".   |
| Fusing resistor -<br>Rating                      | 10 ohm, 2W  |

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**Special Instructions to UL Representative**

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.

**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) | --              | PRI-SEC             | 300<br>0 | 4242 | 1            |

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

All models in this report

**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:**

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

| Model | Component | Material | Test | Sample(s) | Test Specifics |
|-------|-----------|----------|------|-----------|----------------|
| --    | --        | --       | --   | --        | --             |

| 1.5.1  | TABLE: list of critical components          |                 |   |                            |                                    | Pass          |
|--|---|-----------------|---|----------------------------|------------------------------------|---------------|
| Object/part or Description                   | Manufacturer/<br>trademark                  | type/model      | technical data  | Product Category<br>CCN(s) | Required<br>Marks of<br>Conformity | Supplement ID |
| 01. Label                                    | Interchangeable                             | Interchangeable | Minimum 75 degree C, suitable to surface.   | PGDQ2 or PGJ12             | UL                                 |               |
| 01a. Permanency of Marking (Alternate)       | --  | --              | Permanently ink-stamped, silk-screened, molded in, or on self-adhesive labels.  | --                         | --                                 |               |
| 02. Enclosure and Plug holder                | Sabic Innovative Plastics Us L L C          | SE1X            | Rate V-1 minimum, 1.5mm thick minimum, 105 degree C minimum, HWI=0. Plastic enclosure secured together by ultra-sonic welding. See supplement enclosure 7-01, 7-05, 7-06, 7-07 for details.       | QMFZ2                      | UL E121562                         |               |
| 02a. Enclosure and Plug holder (Alternative) | Asahi Kasei Chemicals Corp<br>Xyron Polymer | 540V            | Rated minimum V-1, minimum 105 degree C. Minimum 1.5 mm thickness, HWI=1. Plastic enclosure secured together by ultra-sonic welding. See supplement enclosure 7-01, 7-05, 7-06, 7-07 for details. | QMFZ2                      | UL E82268                          |               |
| 02b. Enclosure and Plug holder (Alternative) | Bayer<br>Materialscience Ag                 | 6485            | Rated minimum V-0, minimum 115 degree C. Minimum 1.5 mm thickness, HWI=2. Plastic enclosure secured together by ultra-sonic welding. See supplement enclosure 7-01, 7-05, 7-06, 7-07 for details. | QMFZ2                      | UL E41613                          |               |
| 02c. Enclosure and Plug holder (Alternative) | Sabic Japan L L C                           | 925U            | Rated minimum V-0, minimum 115 degree C. Minimum 1.5 mm thickness, HWI=3. Plastic enclosure secured together by ultra-sonic welding. See supplement enclosure 7-01, 7-05, 7-06, 7-07 for details. | QMFZ2                      | UL E207780                         |               |

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| 03. Insulation Sheet<br>(Between transformer<br>and other secondary<br>components)                   | Sumitomo Bakelite<br>Co Ltd                            | AV-Lite DP 901                                 | Rated V-0, 130degree C.<br>Minimum 0.4 mm thickness.<br>See Enclosure Diagram 7-02<br>for details | QMFZ2 | UL E41429  | 7-02 |
| 03a. Insulation Sheet<br>(Between transformer<br>and other secondary<br>components)<br>(Alternative) | Sabic Innovative<br>Plastics Us L L C                  | FR700  | Rated V-0, 125degree C.<br>Minimum 0.4 mm thickness.<br>See Enclosure Diagram 7-02<br>for details | QMFZ2 | UL E121562 | 7-02 |
| 03b. Insulation Sheet<br>(Between transformer<br>and other secondary<br>components)<br>(Alternative) | Mianyang Longhua<br>Film Co Ltd                        | PC-770, PC-<br>770 A, PC-870<br>A, PC-1870-ECO | Rated V-0, 80degree C.<br>Minimum 0.4 mm thickness.<br>See Enclosure Diagram 7-02<br>for details  | QMFZ2 | UL E254551 | 7-02 |
| 04.PWB   | Dongguan He Tong<br>Electronics Co Ltd                 | 2V0  | V-0 or better, minimum<br>130 degree C.   | ZPMV2 | UL E243157 |      |
| 04a.PWB (Alternate)  | Interchangeable  | Interchangeable                                | V-0 or better, minimum<br>130 degree C.   | ZPMV2 | UL         |      |
| 05.Current fuse (F1)   | Littelfuse Wickmann<br>Werke                           | 392  | T1AL, 250Vac  | JDYX2 | UL E67006  |      |
| 05a.Current fuse (F1)<br>(Alternate)   | EVER ISLAND<br>ELECTRIC CO LTD<br>& WALTER<br>ELECTRIC | 2010 series                                    | T1AL, 250Vac  | JDYX2 | UL E220181 |      |
| 05b.Current fuse (F1)<br>(Alternate)   | Lanson<br>Electronics Co Ltd                           | SMT  | T1AL, 250Vac  | JDYX2 | UL E221465 |      |
| 05c.Current fuse (F1)<br>(Alternate)   | Conquer Electronics<br>Co Ltd                          | MST  | T1AL, 250Vac  | JDYX2 | UL E82636  |      |
| 05d.Current fuse (F1)<br>(Alternate)   | Cooper Bussmann<br>Llc                                 | SS-5   | T1AL, 250Vac  | JDYX2 | UL E19180  |      |
| 05e.Current fuse (F1)<br>(Alternate)   | Bel Fuse Inc   | RST  | T1AL, 250Vac  | JDYX2 | UL E20624  |      |
| 05f.Current fuse (F1)<br>(Alternate)   | Smart Electronics<br>Inc.                              | SPT series                                     | T1AL, 250Vac  | JDYX2 | UL E238986 |      |
| 05g. Current fuse (F1)<br>(Alternate)  | Sunny East<br>Enterprise Co Ltd                        | TSP series                                     | T1AL, 250Vac  | JDYX2 | UL E133774 |      |
| 05h. Current fuse (F1)   | Nippon Seisen Cable                                    | SLT series                                     | T1AL, 250Vac  | JDYX2 | UL E120786 |      |

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| (Alternate)                              | Ltd  |                 |  |       |            |  |
| 05i. Current fuse (F1)<br>(Alternate)    | Conquer Electronics<br>Co Ltd                      | PTU             | T1AL, 250Vac   | JDYX2 | UL E82636  |  |
| 05j. Current fuse (F1)<br>(Alternate)    | Walter Electronic Co<br>Ltd                        | ICP             | T1AL, 250Vac   | JDYX2 | UL E56092  |  |
| 05k. Current fuse (F1)<br>(Alternate)    | Chi Lick Schurter<br>Limited)                      | SPT series      | T1AL, 250Vac   | JDYX2 | UL E184831 |  |
| 05l. Current fuse (F1)<br>(Alternate)    | Lanson<br>Electronics Co Ltd                       | 3N              | T1AL, 250Vac   | JDYX2 | UL E221465 |  |
| 05m. Current fuse (F1)<br>(Alternate)    | Littelfuse Inc                                     | 877+            | T1AL, 250Vac   | JDYX2 | UL E10480  |  |
| 05n. Current fuse (F1)<br>(Alternate)    | Dongguan Better<br>Electronic<br>Technology Co Ltd | 334             | T1AL, 250Vac   | JDYX2 | UL E300003 |  |
| 05o. Fusing resistor (F1)<br>(Alternate) | ANHUI<br>CHANGSHENG<br>ELECTRONICS CO<br>LTD       | FRT             | Rated 10 Ohm, 2W   | FPEW2 | UL E306095 |  |
| 05p. Fusing resistor (F1)<br>(Alternate) | TZAI YUAN<br>ENTERPRISE CO<br>LTD                  | KNF             | Rated 10 Ohm, 2W   | FPEW2 | UL E355632 |  |
| 05q. Fusing resistor (F1)<br>(Alternate) | Hua Sheng<br>Electronics                           | FKN             | Rated 10 Ohm, 2W   | --    | --         |  |
| 05r. Fusing resistor (F1)<br>(Alternate) | GREAT<br>ELECTRONICS CO<br>LTD                     | RXF             | Rated 10 Ohm, 2W   | FPEW2 | UL E301541 |  |
| 06. Electrolytic capacitors<br>(C1, C2)  | --   | --              | Min.400V, 3.3-15uF, 105<br>degree C. Type is guard<br>against exploding. | --    | --         |  |
| 07. Choke(L1)                            | --   | --              | Minimum 130 degree C. 3.3<br>mH. 500Vac                                  | --    | --         |  |
| 08. Transistor (Q2)                      | --   | --              | Min. 1A, Min.600V  | --    | --         |  |
| 09. Heat-shrinkable tube                 | Woer<br>Heat-Shrinkable<br>Material Co Ltd         | RSFR            | Rated VW-<br>1, Min.400V, 125degree C.                                   | YDPU2 | UL E203950 |  |
| 09a. Heat-shrinkable<br>tube (Alternate) | Interchangeable                                    | Interchangeable | Rated VW-1,<br>Min.400V, 125degree C.                                    | YDPU2 | UL         |  |

|  |   |                      |   |       |            |      |
|--|---|----------------------|---|-------|------------|------|
| 10. Transformer (T1)                             |   | DSA-5PFU-05          | Class B See 4-01 for construction details.  | --    | --         | 4-01 |
| 10-1. Transformer (T1) insulation system         |   | YCI-130              | Class 130(B)  | OBJY2 | UL E159480 |      |
| 10-2. Transformer - Bobbin                       | Sumitomo Bakelite Co Ltd                | PM-9820              | Phenolic, V-0, 150 degree C , Min. thickness 0.71mm   | QMFZ2 | UL E41429  |      |
| 10-2a. Transformer – Bobbin (Alternate)          | Hitachi Chemical Co Ltd                 | CP-J-8800            | Phenolic, V-0, 150 degree C , Min. thickness 0.71mm   | QMFZ2 | UL E42956  |      |
| 10-3. Transformer - Insulation Tape              | 3m company electrical markets div (EMD) | 1350F-1, 1350F-2     | Rated 130 degree C.   | OANZ2 | UL E17385  |      |
| 10-3a. Transformer - Insulation Tape (Alternate) | Symbio Inc                              | 35660, 35661, 35660Y | Rated 130 degree C.   | OANZ2 | UL E50292  |      |
| 10-4 Transformer - Core                          | --                                      | --                   | Ferrite, dimensions see 4-01 for details. With min. 2 layers of insulation tape wrapped around core body. | --    | --         |      |
| 10-5 Transformer Winding                         | Interchangeable                         | Interchangeable      | MW75 or MW28 rated 130 degree C.  | OBMW2 | UL         |      |
| 10-6a. Triple insulation wire (Alternate)        | Young Chang Silicone Co Ltd             | STW-B                | Rated 130 degree C  | OBJT2 | UL E242198 |      |
| 10-6b. Triple insulation wire (Alternate)        | Furukawa Electric Co., Ltd.             | TEX-B                | Rated 130 degree C  | OBJT2 | UL E206440 |      |
| 10-6c. Triple insulation wire (Alternate)        | Furukawa Electric Co., Ltd.             | TEX-E                | Rated 130 degree C  | OBJT2 | UL E206440 |      |
| 10-6d. Triple insulation wire (Alternate)        | Cosmolink Co Ltd                        | TIW-M                | Rated 130 degree C  | OBJT2 | UL E213764 |      |
| 10-6e. Triple insulation wire (Alternate)        | Great Leoflon Industrial Co Ltd         | TRW(B)               | Rated 130 degree C  | OBJT2 | UL E211989 |      |
| 10-6f. Triple insulation wire (Alternate)        | E&B Technology Co Ltd                   | E&B-XXX              | Rated 130 degree C  | OBJT2 | UL E315265 |      |
| 10-6g. Triple insulation wire (Alternate)        | Dah Jin Technology Co Ltd               | TLW-B                | Rated 130 degree C  | OBJT2 | UL E236542 |      |
| 10-7 Transformer - Varnish                       | Hitachi Chemical Co Ltd                 | WP-2952F-2G          | Rated 130 degree C.   | OBOR2 | UL E72979  |      |
| 10-7a. Transformer –                             | Elantas Electrical                      | 468-2(x)             | Rated 130 degree C.   | OBOR2 | UL E75225  |      |



|   |                               |                 |  |              |    |      |
|---|-------------------------------|-----------------|--|--------------|----|------|
| Varnish (Alternate)   | Insulation Elantas<br>Pdg Inc |                 |  |              |    |      |
| 11. Connectors and Receptacles for models GT-83083-WW05-USB-W2Z, GT-83083-WW05-USB (secondary ELV/SELV circuits)              | interchangeable               | interchangeable | Minimum 5V   | ECBT2, RTRT2 | UL |      |
| 11a. Connectors and Receptacles for models GT-83083-WW05-USB-W2Z, GT-83083-WW05-USB (secondary ELV/SELV circuits) (Alternate) | interchangeable               | interchangeable | Copper alloy pins housed in bodies of plastic rated V-2 minimum  | QMFZ2        | UL |      |
| 12.Input blade  | ---                           | --              | Copper or Copper Alloy, non-polarized (NEMA 1-15P configuration). Integrally melded onto Plug Holder, perimeter of face section from which Blade projection minimum 5.5 mm from any point on either blade. See Enclosure Id. 7-04 for details. | --           | -- | 7-04 |
| 13. Insulation Sheet (Between primary and input)  | interchangeable               | interchangeable | Rated V-0, 130degree C.  | QMFZ2        | UL | 7-03 |
| 14.Glue(On L1)  | interchangeable               | interchangeable | V-2 minimum or HF-2 minimum  | QMFZ2        | UL |      |
| 15. Strain Relief for model GT-83083-WW05   | Interchangeable               | Interchangeable | V-1 minimum. See Enclosure ID 7-07 for details.  | QMFZ2        | UL | 7-07 |
| 16.Output wire for GT-83083-WW05  | Interchangeable               | Interchangeable | Rated VW-1, minimum 24AWG, minimum 300V, minimum 80 degree C. Maximum 3.05 m long coiled or uncoiled, jacketed VW-1 or FT-1. Solder in the PWB with  | AVLV2        | UL |      |

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|  |  |  | hooks or soldered to PWB<br>additionally fixed by glue. |  |  |  |
|--|--|--|---|--|--|--|

## Enclosures

| <u>Type</u>      | <u>Supplement Id</u> | <u>Description</u>  |
|------------------|----------------------|---|
| Photographs      | 3-01                 | Overall view I of model GT-83083-WW05-USB-W2                  |
| Photographs      | 3-02                 | Overall view II of model GT-83083-WW05-USB-W2                 |
| Photographs      | 3-03                 | Overall view I of model GT-83083-WW05-USB-W2                  |
| Photographs      | 3-04                 | Overall view II of model GT-83083-WW05-USB-W2                 |
| Photographs      | 3-05                 | Overall view I of model GT-83083-WW05-USB                     |
| Photographs      | 3-06                 | Overall view II of model GT-83083-WW05-USB                    |
| Photographs      | 3-07                 | Overall view III of model GT-83083-WW05-USB                   |
| Photographs      | 3-08                 | Overall view IIII of model GT-83083-WW05-USB                  |
| Photographs      | 3-09                 | Inside view I of model GT-83083-WW05-USB-W2                   |
| Photographs      | 3-10                 | Inside view II of model GT-83083-WW05-USB-W2                  |
| Photographs      | 3-11                 | Inside view III of model GT-83083-WW05-USB-W2                 |
| Photographs      | 3-12                 | Components side View  |
| Photographs      | 3-13                 | Trace side View   |
| Photographs      | 3-14                 | Inside view of direct plug                                    |
| Photographs      | 3-15                 | Inside View of bottom enclosure(Model: GT-83083-WW05-USB)     |
| Photographs      | 3-17                 | Overall view 1 for model GT-83083-WW05                        |
| Photographs      | 3-18                 | Overall view 2 for model GT-83083-WW05                        |
| Photographs      | 3-19                 | Internal view 2 for model GT-83083-WW05                       |
| Diagrams         | 4-01                 | Transformer T1 spec.  |
| Schematics + PWB | 5-01                 | PCB layout  |
| Miscellaneous    | 7-01                 | Enclosure dimension (model: GT-83083-WW05-USB-W2, Unit:mm)    |
| Miscellaneous    | 7-02                 | Mylar sheet dimension between Primary and secondary (Unit:mm) |
| Miscellaneous    | 7-03                 | Mylar sheet dimension in primary (Unit:mm)                    |
| Miscellaneous    | 7-04                 | Plug dimension (Unit:inch)                                    |
| Miscellaneous    | 7-05                 | Enclosure dimension (model: GT-83083-WW05-USB-W2, Unit:mm)    |
| Miscellaneous    | 7-06                 | Enclosure dimension(model: GT-83083-WW05-USB, Unit: mm)       |
| Miscellaneous    | 7-07                 | Enclosure dimension(model: GT-83083-WW05, Unit: mm)           |
| Miscellaneous    | 7-08                 | Strain relief for model GT-83083-WW05                         |
| Miscellaneous    | 7-09                 | Model list  |