UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Listing
CCN:	QQGQ, QQGQ7 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	ITE Power Supply
Model:	(1) GT-86180-WW12-W2, GT-86180-WW12-G, GT-86180-WW12; (2) GT-86180-WW09-W2 ("WW" is variables; see enclosure ID7-01 for details.)
Rating:	Input: 100-240Vac or 200-240Vac or 100-120Vac, 50/60Hz, 0.6A; Output: (1) 12Vdc, MAX. 0.01-1.50A; (2) 9Vdc, MAX. 0.01-2.00A
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.

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 ITE Power Supply, provided non-polarized & non-detachable plug. Consists of electronic components mounted on PWB and housed with plastic enclosure by ultrasonic welding.

Model Differences

All models are similar to each other, except for blade construction and output/input rating and model designation.
See supplement Enclosure ID 7-01 for details.

There are two versions of PCB layout, one for 3000m altitude (Marked REV:1 in PCB), the other one for 5000m altitude (Marked REV:2 in PCB).

Models GT-86180-WW12 and GT-86180-WW12-G are identical to model GT-86180-WW12-W2 except for blade construction and enclosure dimension.

Model GT-86180-WW09-W2 is identical to GT-86180-WW12-W2 except for transformer and output rating.

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) : 20A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : Up to 3000 or 5000 m

- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : Max. 0.184
- 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
- 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 blade dimension was evaluated to be complied with NEMA configurations in accordance with Wiring Devices - Dimensional Specifications, ANSI/NEMA WD6., Also comply with UL1310 mechanical strength requirement.
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: CY1 secondary circuit.
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): DC Output.
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- This equipment has evaluated to be operated under altitude up to 3,000m (Marked REV:1 in PCB) or 5,000m (Marked REV:2 in PCB), so the clearance is multiplied by the altitude correction factors(1.14 or 1.48), 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
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Power rating - Class II symbol	Symbol for Class II construction  (60417-2-IEC-5172)
Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or

	fuseholder.
LPS	Optional provides with marked "LPS" or "Limited Power Source".
Fusing resistor rating	3.3 Ohm, 2W.

Special Instructions to UL Representative

Inspect the transformer(s) listed in Production-Line Testing Requirements (Electric Strength Test Special Constructions) 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 Production-Line Testing Requirements (Electric Strength Test Special Constructions) be conducted at the component manufacturer.

Inspect the transformer(s) listed in Production-Line Testing Requirements (Electric Strength Test Special Constructions) 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 Production-Line Testing Requirements (Electric Strength Test Special Constructions) 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	--	primary to secondary	3000	4242	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:

No exemption

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/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
01. Label	Interchangeable	Interchangeable	Minimum 75 degree C, suitable for plastic surface.	PGDQ2 or PGJI2	UL	
01a. Label (Alternate)	--	--	Permanently ink-stamped, silk-screened, molded in label.	--	--	
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.	QMFZ2	UL	
02a. Enclosure and plug holder (Alternate)	Asahi Kasei Chemicals Corp 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.	QMFZ2	UL	
02b. Enclosure and plug holder (Alternate)	Bayer 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..	QMFZ2	UL	
02c. Enclosure and plug holder (Alternate)	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.	QMFZ2	UL	
02d. Enclosure and plug holder (Alternate)	Idemitsu Kosan Co., Ltd.	AZ2201	Rated minimum V-0, minimum 125 degree C. Minimum 1.5 mm thickness, HWI=2. Plastic enclosure secured together by ultra-sonic welding.	QMFZ2	UL	
02e. Enclosure and plug holder (Alternate)	Sabic Japan L L C	CH6410	Rated minimum V-0, minimum 100 degree C. Minimum 1.5 mm thickness, HWI=3. Plastic enclosure secured together by	QMFZ2	UL	

			ultra-sonic welding.			
02f. Enclosure and plug holder (Alternate)	Sabic Japan L L C	SE1X	Rated minimum V-1, minimum 105 degree C. Minimum 1.5 mm thickness, HWI=0. Plastic enclosure secured together by ultra-sonic welding.	QMFZ2	UL	
03. PWB	Interchangeable	Interchangeable	V-1 or better, 130 degree C.	ZPMV2	UL	
04. Primary lead wire	Interchangeable	Interchangeable	Rated VW-1 minimum 24 AWG, minimum 300 V, minimum 80 degree C.	AVLV2	UL	
05. Heat-shrinkable tube	Interchangeable	Interchangeable	Rated VW-1, minimum 300V, minimum 125 degree C.	YDPU2	UL	
06. Fuse (F1) (Alternative between T6.3AL, T3.15AL, Jumper and T2AL)	Interchangeable	Interchangeable	T2.0A or T3.15A or T6.3A, 250Vac	JDYX	UL	
06a. Fuse (F1) (Alternate)	Littelfuse Wickmann Werke	392	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06b. Fuse (F1) (Alternate)	Conquer Electronics Co Ltd	MST	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06c. Fuse (F1) (Alternate)	Cooper Bussmann LLC	SS-5	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06d. Fuse (F1) (Alternate)	Bel Fuse Inc	RST	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06e. Fuse (F1) (Alternate)	Chi Lick Schurter Limited	SPT	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06f. Fuse (F1) (Alternate)	Conquer Electronics Co Ltd	PTU	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06g. Fuse (F1) (Alternate)	Littelfuse Inc	877	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06h. Fuse (F1) (Alternate)	Walter Electronic Co Ltd	2010	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06i. Fuse (F1) (Alternate)	Nippon Seisen Cable Ltd	SLT series	T2.0A or T3.15A or T6.3A, 250Vac	JDYX2	UL	
06j. Fuse (F1) (Alternate)	Walter Electronic Co Ltd	ICP	T2.0A, 250Vac	JDYX2	UL	
06k. Fuse (F1)	XC Electronics	5TE series	T2.0A, T3.15A, T6.3A, 250Vac,	JDYX	UL	

(Alternate)			Sub-miniature type			
06l. Fuse (F1) (Alternate)	XC Electronics	4T series	T2.0A, T3.15A, T6.3A, 250Vac, Sub-miniature type	JDYX	UL	
07. Fuse resistor (F2)	Anhui Changsheng Electronics Co Ltd	FRT	3.3ohm, 2W	FPEW2	UL	
07a. Fuse resistor (F2)	Tzai Yuan Enterprise Co Ltd	KNF	3.3ohm, 2W	FPEW2	UL	
07b. Fuse resistor (F2)	Hua Sheng Electronics	FKN	3.3ohm, 2W	--	--	
07c. Fuse resistor (F2)		RXF series	3.3ohm, 2W	FPEW2	UL	
08. Fuse (F2)	Interchangeable	Interchangeable	T2.0A, 250Vac	JDYX	UL	
08a. Fuse (F2)	Littelfuse Wickmann Werke	392	T2.0A, 250Vac	JDYX2	UL	
08b. Fuse (F2)	Conquer Electronics Co Ltd	MST	T2.0A, 250Vac	JDYX2	UL	
08c. Fuse (F2)	Cooper Bussmann LLC	SS-5	T2.0A, 250Vac	JDYX2	UL	
08d. Fuse (F2)	Bel Fuse Inc	RST	T2.0A, 250Vac	JDYX2	UL	
08e. Fuse (F2)	Chi Lick Schurter Limited	SPT	T2.0A, 250Vac	JDYX2	UL	
08f. Fuse (F2)	Conquer Electronics Co Ltd	PTU	T2.0A, 250Vac	JDYX2	UL	
08g. Fuse (F2)	Littelfuse Inc	877	T2.0A, 250Vac	JDYX2	UL	
08h. Fuse (F2)	Walter Electronic Co Ltd	2010	T2.0A, 250Vac	JDYX2	UL	
08i. Fuse (F2)	Nippon Seisen Cable Ltd	SLT series	T2.0A, 250Vac	JDYX2	UL	
08j. Fuse (F2)	Walter Electronic Co Ltd	ICP	T2.0A, 250Vac	JDYX2	UL	
06k. Fuse (F2) (Alternate)	XC Electronics	5TE series	T2.0A, 250Vac, Sub-miniature type	JDYX	UL	
06l. Fuse (F2) (Alternate)	XC Electronics	4T series	T2.0A, 250Vac, Sub-miniature type	JDYX	UL	
09. Varistor (MOV1) (Optional)	Centra Science Corp	CNR10D431K CNR10D471K CNR14D431K	Minimum 300Vac.	VZCA2	UL	

		CNR14D471K				
09a. Varistor (MOV1) (Optional) (Alternate)	Uppermost Electronic Industries Co Ltd	V10K300, V10K320, V10K350, V10K385, V14K300, V14K320, V14K350, V14K385	Minimum 300Vac.	VZCA2	UL	
09b. Varistor (MOV1) (Optional) (Alternate)	Jya-Nay Co Ltd	10D431K, 10D471K, 14D431K, 14D471K	Minimum 300Vac.	VZCA2	UL	
09c. Varistor (MOV1) (Optional) (Alternate)	Joyin Co Ltd	10N431K, 10N471K, 14N431K, 14N471K	Minimum 300Vac.	VZCA2	UL	
09d. Varistor (MOV1) (Optional) (Alternate)	Walsin Technology Corp	VZ10D431K, VZ10D471K, VZ14D431K, VZ14D471K	Minimum 300Vac.	VZCA2	UL	
09e. Varistor (MOV1) (Optional) (Alternate)	Panasonic Corporation, Panasonic Corporation Of North America	10K431U, 10K471U, 14K471U	Minimum 300Vac.	VZCA2	UL	
09f. Varistor (MOV1) (Optional) (Alternate)	Thinking Electronic Industrial Co Ltd	TVR10431, TVR10471, TVR14431, TVR14471	Minimum 300Vac.	VZCA2	UL	
09g. Varistor (MOV1) (Optional) (Alternate)	Feng Hua Advance Technology (Holding) Co Ltd	FNR-10K431, FNR-10K471, FNR-14K431, FNR-14k471	Minimum 300Vac.	VZCA2	UL	
09h. Varistor (MOV1) (Optional) (Alternate)		10D431K, 10D471K, 14D431K,	Minimum 300Vac.	VZCA2	UL	

		14D471K				
09i. Varistor (MOV1) (Optional) (Alternate)	Littelfuse Inc	V300LA10P, V300LA20AP, V385LA10P, V385LA20AP, V10E300P, V10E385P, V14E300P, V14E385P	Minimum 300Vac.	VZCA2	UL	
09j. Varistor (MOV1) (Optional) (Alternate)	Guangxi New Future Information Industry Co Ltd	10D471K, 14D471K	Minimum 300Vac.	VZCA2	UL	
10. Choke(LF1)		30C030100-xxx (“xxx” to denote the part number, can be any alphanumeric character for marketing purposes only.)	Minimum 130 degree C.	--	--	
10-1. Bobbin	Interchangeable	Interchangeable	Minimum 130 degree C.	QMFZ2	UL	
10-2. Tape	Interchangeable	Interchangeable	Minimum 130 degree C.	OANZ2	UL	
11. Bridge Rectifier (D1, D2, D3, D4)	--	--	Minimum 1.0A, Minimum 400V	--	--	
12.Electrolytic capacitors (C1)	--	--	400Vac, 22-47uF, 105 degree C. Provided with pressure relief function.	--	--	
13. Transistor (Q1)	--	--	Minimum 1A, Minimum 400V	--	--	
14. X-Capacitor (CX1) (Optional)	Carli Electronics Co Ltd	MPX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14a. X-Capacitor (CX1) (Optional) (Alternate)	Okaya Electric Industries Co Ltd	PA, RE	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14b. X-Capacitor (CX1) (Optional) (Alternate)	Yuon Yu Electronics Co Ltd	MPX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	

14c. X-Capacitor (CX1) (Optional) (Alternate)	Dongguan Okaya Electric Co Ltd	RE	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14e. X-Capacitor (CX1) (Optional) (Alternate)	Strong Components Co Ltd	MPX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14f. X-Capacitor (CX1) (Optional) (Alternate)	Chiefcon Electronics Co Ltd	CKX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14g. X-Capacitor (CX1) (Optional) (Alternate)	Iskra Sistemi, D D	KNB 1530, KNB 1532, KNB 1533, KNB 1537, KNB1560	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14h. X-Capacitor (CX1) (Optional) (Alternate)	Ultra Tech Xiphi Enterprise Co Ltd	HQX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14i. X-Capacitor (CX1) (Optional) (Alternate)	Pilkor Electronics Co Ltd	PCX2 335M, PCX2 337	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14j. X-Capacitor (CX1) (Optional) (Alternate)	Joey Electronics (Dong Guan) Co Ltd	MPX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14k. X-Capacitor (CX1) (Optional) (Alternate)	Jinghao Capacitor Co., Ltd.	CBB62B	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14l. X-Capacitor (CX1) (Optional) (Alternate)	Sinhua Electronics (Huzhou) Co Ltd	MPX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14m. X-Capacitor (CX1) (Optional) (Alternate)	Yimanfeng Science And Technology Ltd	MPX/MKP	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14n. X-Capacitor (CX1) (Optional) (Alternate)		MPX/MKP	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
14o. X-Capacitor (CX1) (Optional) (Alternate)	Hongzhi Enterprises Ltd	MPX	Maximum 0.22uF, minimum 250 V, minimum 100 degree C.	FOWX2	UL	

			Marked with X2 type.			
14p. X-Capacitor (CX1) (Optional) (Alternate)	Wujiang Taixing Electronic Co Ltd	TNS-2TH	Maximum 0.22uF, minimum 250 V, minimum 100 degree C. Marked with X2 type.	FOWX2	UL	
15. Bleeder Resistor (RA, RB)	--	--	Each rated 1.5Mohm, minimum 1/4W	--	--	
16. Y - Capacitor (CY1) (optional)	Tdk-Epc Corp	CD	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16a. Y - Capacitor (CY1) (optional) (Alternate)	Success Electronics Co., Ltd.	SE	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16b. Y - Capacitor (CY1) (optional) (Alternate)	Murata Mfg Co Ltd	KX	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16d. Y - Capacitor (CY1) (optional) (Alternate)	Jya-Nay Co Ltd	JN	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16e. Y - Capacitor (CY1) (optional) (Alternate)	Welson Industrial Co Ltd	WD	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16f. Y - Capacitor (CY1) (optional) (Alternate)	Samwha Capacitor Samwha Capacitor	SD	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16g. Y - Capacitor (CY1) (optional) (Alternate)	Nanjing Yuyue Electronics Co,. Ltd.	CT7	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16h. Y - Capacitor (CY1) (optional) (Alternate)	Jyh Hsu (Jec) Electronics Ltd	JD	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
16i. Y - Capacitor (CY1) (optional) (Alternate)	Yinan Don's Electronic Component Co	CT81	Rated maximum 2200 pF, minimum 250 V, 125 degree C. Marked with Y1.	FOWX2	UL	
17. Optocoupler (IC2)	Sharp Corp Electronic Components And Devices Div	PC817, PC123	Providing 5000 Vac isolation, minimum100 degree C.	FPQU2	UL	

17a. Optocoupler (IC2) (Alternate)	Lite-On Technology Corp	LTV-817	Providing 5300 Vac isolation, minimum115 degree C.	FPQU2	UL	
17b. Optocoupler (IC2) (Alternate))	Everlight Electronics Co Ltd	EL 817	Providing 5000 Vac isolation, minimum110 degree C.	FPQU2	UL	
17c. Optocoupler (IC2) (Alternate)	Cosmo Electronics Corp	K1010, KP1010	Providing 5000 Vac isolation, minimum115 degree C.	FPQU2	UL	
17d. Optocoupler (IC2) (Alternate)	Fairchild Semiconductor Corp	H11A817B	Providing 5000 Vac isolation, minimum110 degree C.	FPQU2	UL	
17e. Optocoupler (IC2) (Alternate)	Bright Led Electronics Corp	BPC817B, BPC817C	Providing 5000 Vac isolation, minimum100 degree C.	FPQU2	UL	
17f. Optocoupler (IC2) (Alternate)	Renesas Electronics Corporation	PS2561	Providing 5000 Vac isolation, minimum100 degree C.	FPQU2	UL	
18. Transformer (T1)		90E18PFM0 90E18PM09 (for 9V/2A output)	Class B.	--	--	
18-1. Transformer (T1) insulation system		YCI-130	Class 130(B)	OBJY2	UL	
18-2. Transformer - Bobbin	Sumitomo Bakelite Co Ltd	PM-9820, PM-9630	Phenolic, V-0, 150 degree C , Min. thickness 0.71mm	QMFZ2	UL	
18-2a. Transformer – Bobbin (Alternate)	Hitachi Chemical Co Ltd	CP-J-8800	Phenolic, V-0, 150 degree C , Min. thickness 0.71mm	QMFZ2	UL	
18-3. Transformer - Insulation Tape	3m company electrical markets div (EMD)	1350F-1, 1350F-2	Rated 130 degree C.	OANZ2	UL	
18-3a. Transformer - Insulation Tape (Alternate)	Symbio Inc	35660, 35661, 35660Y	Rated 130 degree C.	OANZ2	UL	
18-4 Transformer - Core	--	--	Ferrite, dimensions see 4-01 for details. With min. 2 layers of insulation tape wrapped around core body.	--	--	
18-5. Transformer Winding	Interchangeable	Interchangeable	MW75 or MW28 rated 130 degree C.	OBMW2	UL	
18-6. Triple insulation wire	Young Chang Silicone Co Ltd	STW-B	Rated 130 degree C	OBJT2	UL E242198	
18-7. Transformer - Varnish	Hitachi Chemical Co Ltd	WP-2952F-2G	Rated 130 degree C.	OBOR2	UL E72979	

18-7a. Transformer – Varnish (Alternate)	Elantas Electrical Insulation Elantas Pdg Inc	468-2(x)	Rated 130 degree C.	OBOR2	UL E75225	
19. Glue	Interchangeable	Interchangeable	V-2 minimum or HF-2 minimum	QMFZ2	UL	
20. 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 5.1 mm from any point on either blade.	--	--	
21. Heat sink for Q1 (HS1)	---	--	Aluminum, secured and soldered to PWB.	--	--	
22. Heat sink for D7 (HS2)	---	--	Aluminum, secured and soldered to PWB.	--	--	
23. Current sense resistor (R2, R2A, R9, R9A)	--	--	Minimum 1.0 ohm, minimum 1/4 W.	--	--	
24. Output wire	Interchangeable	Interchangeable	Rated VW-1 minimum 24 AWG, minimum 300 V, minimum 80 degree C.	AVLV2	UL	
25. Insulation sheet between transformer and secondary components dimension	Sumit Omo Bakelite Co Ltd	AV-Lite DP 901	Rated V-0, 125 degree C. Minimum 0.4 mm thickness.	QMFZ2	UL	
25a. Insulation sheet between transformer and secondary components dimension (Alternate)	Sabic Innovative Plastics Us Llc	FR700	Rated V-0, 125 degree C. Minimum 0.4 mm thickness.	QMFZ2	UL	
25b. Insulation sheet between transformer and secondary components dimension (Alternate)	Dupont Hongji Films Foshan Co Ltd	EM, MO31	Rated V-0, 105 degree C. Minimum 0.4 mm thickness.	QMFZ2	UL	
25e. Insulation sheet between transformer and	Jiangsu Yuxing	CY28	Rated V-0, 105degree C. Minimum 0.4 mm thickness.	QMFZ2	UL	

secondary components dimension (Alternate)						
26. Foam (Provided between PWB and enclosure.) (Optional)	Interchangeable	Interchangeable	HF-1 or better, black, thickness: min.3.0mm.	QMFZ2	UL	
27. Strain relief	Interchangeable	Interchangeable	V-1 or better, Integrally molded on Output Cable, fixed in enclosure hole.	QMFZ2	UL	
28. Output cord	Interchangeable	Interchangeable	Non-detachable. Maximum 3.05 m length. Minimum 22 AWG, minimum 30V, 80 degree C, VW-1 or FT-1.	AVLV2	UL	
29.Insulation sheet between L/N and Primary	Interchangeable	Interchangeable	V-2 or better, Minimum 105 degree C .	QMFZ2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	3-01	Overview 1 for Models GT-86180-WWVV-W2 Series
Photographs	3-02	Overview 2 for Models GT-86180-WWVV-W2 Series
Photographs	3-03	Internal view 1(3000m altitude)
Photographs	3-04	Internal view 2(3000m altitude)
Photographs	3-05	PCB component side view(3000m altitude)
Photographs	3-06	PCB trace side view(3000m altitude)
Photographs	3-07	T1 upper view
Photographs	3-08	T1 bottom view
Photographs	3-09	Internal view 3(5000m altitude)
Photographs	3-10	Internal view 4(5000m altitude)
Photographs	3-11	PCB component side view(5000m altitude)
Photographs	3-12	PCB trace side view(5000m altitude)
Photographs	3-13	Overview 3 for Model GT-86180-WW12-G
Photographs	3-14	Overview 4 for Model GT-86180-WW12-G
Photographs	3-15	Internal view 5(3000m altitude)
Photographs	3-16	Internal view 6(3000m altitude)
Photographs	3-17	PCB component side view(3000m altitude)
Photographs	3-18	PCB trace side view(3000m altitude)
Photographs	3-19	Internal view 7(5000m altitude)
Photographs	3-20	Internal view 8(5000m altitude)
Photographs	3-21	PCB component side view(5000m altitude)
Photographs	3-22	PCB trace side view(5000m altitude)
Photographs	3-23	Overall view 1 for Model GT-86180-WW12
Photographs	3-24	Overall view 2 for Model GT-86180-WW12
Diagrams	4-01	Transformer T1 spec. (Type: 90E18PFM0)
Diagrams	4-02	Choke LF1 spec.
Diagrams	4-03	Transformer T1 Spec.(Type: 90E18PM09)
Schematics + PWB	5-01	PWB layout(REV:1)
Schematics + PWB	5-02	PWB layout(REV:2)
Miscellaneous	7-01	Model list
Miscellaneous	7-02	Enclosure dimension (Unit: mm)
Miscellaneous	7-03	Heatsink HS1 dimension (Unit: mm)
Miscellaneous	7-04	Heatsink HS2 dimension (Unit: mm)
Miscellaneous	7-05	Insulation sheet between transformer and secondary components dimension (Unit: mm)

Miscellaneous	7-06	Blade dimension (Unit: inch)
Miscellaneous	7-07	Strain relief (Unit: mm)
Miscellaneous	7-08	Enclosure dimension(Unit: mm)
Miscellaneous	7-09	Insulation sheet between L/N and Primary(Unit: mm)
Miscellaneous	7-10	Enclosure drawing

Test Record

The following tests were conducted:

Test	Testing Location/Comments
End Product Reference Page	
General Guidelines	
Power Supply Reference Page	
Guide Information Page - Maximum Output Voltage, Current, and Volt Ampere Measurement (1.2.2.1)	
Input: Single-Phase (1.6.2)	
Capacitance Discharge (2.1.1.7)	
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)	
Limited Current Circuit Measurement (2.4.1, 2.4.2)	
Limited Power Source Measurements (2.5)	
Humidity (2.9.1, 2.9.2, 5.2.2)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Transformer and Wire /Insulation Electric Strength (2.10.5.13)	
Strain Relief (3.2.6, 4.2.1, 4.2.7)	
Steady Force (4.2.1 - 4.2.4)	
Drop (4.2.6, 4.2.1)	
Stress Relief (4.2.7, 4.2.1)	
Direct Plug-In Equipment-Moment (4.3.6)	
Direct Plug-In Blade Securement (4.3.6)	
Direct Plug-In Security of Input Contacts (4.3.6)	
Direct Plug-In Resistance to Crushing (4.3.6)	
Direct Plug-In Rod Pressure (4.3.6)	
Direct Plug-In Input Blade Endurance (4.3.6)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Ball Pressure (4.5.5, 4.5)	
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	
Electric Strength (5.2.2)	
Component Failure (5.3.1, 5.3.4, 5.3.7)	
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	
Power Supply Output Short-Circuit/Overload (5.3.7)	

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.