

APPLICATION FOR LVD TEST REPORT

On Behalf of

Prepared For : GUANGZHOU SUNNYSKY SOLAR EQUIPMENT CO.,LTD
No.6 Building 6, Yiheng Road, Xipengling, Hebian Wushe Industry Area,
Baiyun District, Guangzhou, China

Product Name : MPPT solar charge controller
Model : TYC-05IR, TYC-10IR, TYC-20IR, TYC-30IR, TYC-40IR, TYC-50IR,
TYC-60IR, TYC-40A96, TYC-50A96, TYC-60A96, TYC-50A220,
TYC-100A220, YC-150A220, TYC-50A380V, TYC-100A380V,
TYC-150A380V, TYC-50A400V, TYC-100A400V, TYC-150A400V

Prepared By : SHENZHEN POCE TECHNOLOGY CO., LTD.
H Building, Hongfa Science And Technology Park, Tangtou, Shiyan,
Bao'An District, Shenzhen, China

Test Date : Jun 30, 2018 to Jul 06, 2018

Date of Report : Jul 06, 2018

Report No. : POCE18063004WRS

TEST REPORT

EN 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report Reference No.....: POCE18063004WRS

Tested by (name and signature): Eva

Approved by (name and signature) : Machael Mo

Date of issue.....: Jul 06, 2018



Testing Laboratory.....: Shenzhen POCE Technology Co., Ltd

Address.....: H Building, Hongfa Science And Technology Park, Tangtou, Shiyan,
Bao'an District, Shenzhen, China

Applicant's name: GUANGZHOU SUNNYSKY SOLAR EQUIPMENT CO.,LTD

Address.....: No.6 Building 6, Yiheng Road, Xipengling, Hebian Wushe Industry Area,
Baiyun District, Guangzhou,China

Test standard: EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013

Test item description: MPPT solar charge controller

Trademark.....: N/A

Manufacturer: GUANGZHOU SUNNYSKY SOLAR EQUIPMENT CO.,LTD

Address.....: No.6 Building 6, Yiheng Road, Xipengling, Hebian Wushe Industry Area,
Baiyun District, Guangzhou, China

Model(s): See page 1 for detail

Rating(s): Input: AC 65-160V, 60A

Test item particulars	
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" type="checkbox"/> direct plug-in
Connection to the mains	<input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains <input type="checkbox"/> built-in component, considered in end system
Operating condition	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other
Mains supply tolerance (%) or absolute mains supply values	+10%, -10%
Tested for IT power systems	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	16A(or 20A for US and CA)
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation (m)	Up to 2000
Altitude of test laboratory (m)	Below 2000
Mass of equipment (kg)	Mass < 7kg
Possible test case verdicts:	
- test case does not apply to the test object	N (Not apply)
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing	
Date of receipt of test item	Jun 30, 2018
Date(s) of performance of tests	Jun 30, 2018 to Jul 06, 2018

General remarks:

The test results presented in this report relate only to the object tested.
 This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

“(See Enclosure #)” refers to additional information appended to the report.

“(See appended table)” refers to a table appended to the report.

Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.

Throughout this report a comma (point) is used as the decimal separator.

General product information:

1. The EUT is a class II equipment
2. The Maximum operating ambient is 40°C;
3. The all models are similar except their model number, and all tests are based on TYC-60IR.

Copy of marking plate:

MPPT solar charge controller

Model: TYC-60IR

Input: AC 65-160V, 60A



Manufacturer: GUANGZHOU SUNNYSKY SOLAR EQUIPMENT CO.,LTD
 Address: No.6 Building 6, Yiheng Road, Xipengling, Hebian Wushe Industry Area,
 Baiyun District, Guangzhou,China

Made in China

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Clause	Requirement	Remark	Result
1	GENERAL		--
1.5	Components		P
1.5.1	General	Components which were found to affect safety aspects comply with the requirements of this standard or with the safety aspects of the relevant IEC component standards. (see appended table 1.5.1)	P
	Comply with IEC60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Components which are certified according to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls		N
1.5.4	Transformers	Transformers used are suitable for their intended application and comply with the relevant requirements of the standard and particularly Annex c.	P
1.5.5	Interconnecting cables		N
1.5.6	Capacitors bridging insulation	X capacitors according to IEC 60384-14	P
1.5.7	Resistors bridging insulation		--
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	No such resistors	N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N
1.5.8	Components in equipment for IT power systems	Not intended for IT power systems	N
1.5.9	Surge suppressors	No such component	N
1.5.9.1	General		N
1.5.9.2	Protection of VDRs		N
1.5.9.3	Bridging of functional insulation by a VDR		N
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N

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Clause	Requirement	Remark	Result

1.6	Power interface		P
1.6.1	AC power distribution systems	TN, and IT for Norway.	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N
1.6.4	Neutral conductor	Considering the neutral conductor was live conductor, the neutral conductor was insulated from the body with reinforced insulation throughout the equipment.	P

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings		P
1.7.1.1	Power rating marking	See below	P
	Multiple mains supply connections.....:	Only one mains supply connections.	N
	Rated voltage(s) or voltage range(s) (V)	See page 2 for detail	P
	Symbol for nature of supply, for d.c.only	The equipment is for a.c. supply	N
	Rated frequency or rated frequency range (Hz)....:		N
	Rated current (mA or A)	See page 2 for detail	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark	GUANGZHOU SUNNYSKY SOLAR EQUIPMENT CO.,LTD	P
	Model identification or type reference	See page 1 for detail	P
	Symbol for Class II equipment only	Class II symbol (IEC 60417-1, symbol No. 5172) is applied to the label.	P
	Other markings and symbols	The additional marking does not give rise to misunderstandings.	P
1.7.2	Safety instructions and marking	Considered.	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Direct plug-in equipment.	N
1.7.2.3	Overcurrent protective device	Pluggable equipment Type A.	N
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool	All areas containing hazard(s) are inaccessible to the operator.	P
1.2.7.6	Ozone	No ozone occur.	N

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Clause	Requirement	Remark	Result
1.7.3	Short duty cycles	The equipment is intended for continuous operation	N
1.7.4	Supply voltage adjustment	No such device	N
	Methods and means of adjustment; reference to installation instructions		N
1.7.5	Power outlets on the equipment	No standard power outlet.	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)		P
1.7.7	Wiring terminals		N
1.7.7.1	Protective earthing and bonding terminals	Class II equipment.	N
1.7.7.2	Terminals for a.c. mains supply conductors	The equipment is not permanently connected or provided with a non-detachable power supply cord.	N
1.7.7.3	Terminals for d.c. mains supply conductors	The equipment is not supplied from d.c mains.	N
1.7.8	Controls and indicators	Refer below.	N
1.7.8.1	Identification, location and marking	No control.	N
1.7.8.2	Colours	No indicators with colours where safety is involved.	N
1.7.8.3	Symbols according to IEC 60417	There are no switches in the equipment.	N
1.7.8.4	Markings using figures	No control.	N
1.7.9	Isolation of multiple power sources	Only one connection supplying hazardous voltages and energy levels to the equipment.	N
1.7.10	Thermostats and other regulating devices	No thermostats or other regulating devices	N
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts	No removable parts	N
1.7.13	Replaceable batteries	No replaceable batteries in the equipment.	N
	Language(s)		—
1.7.14	Equipment for restricted access locations		N
2	PROTECTION FROM HAZARDS		--
2.1	Protection from electric shock and energy hazards		--
2.1.1	Protection in operator access areas	See below	P
2.1.1.1	Access to energized parts		P
	Test by inspection	Can't access to hazards energized parts	P

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Clause	Requirement	Remark	Result
	Test with test finger (Figure 2A)	Can't access to hazards energized parts	P
	Test with test pin (Figure 2B)	Can't access to hazards energized parts	P
	Test with test probe (Figure 2C)	No TNV circuit in the equipment.	N
2.1.1.2	Battery compartments	No battery compartments	N
2.1.1.3	Access to ELV wiring		N
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	All accessible parts are separated from internal wiring at hazardous voltage by double or reinforced insulation, complying with 2.10.5 and 3.1.4.	P
2.1.1.5	Energy hazards	(see appended table 2.1.1.5)	N
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment		N
	Measured voltage (V); time-constant (s)		—
2.1.1.8	Energy hazards – d.c. mains supply	Not connected to DC mains supply.	N
	a) Capacitor connected to the d.c. mains supply :		N
	b) Internal battery connected to the d.c. mains supply		N
2.1.1.9	Audio amplifiers	No audio amplifiers.	N
2.1.2	Protection in service access areas	Checked by inspection unintentional contact is unlikely during service operations.	P
2.1.3	Protection in restricted access locations		N
2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)	Within SELV limits. (See appended table 2.2)	P
2.2.3	Voltages under fault conditions (V)	Within SELV limits. (See appended table 2.2)	P
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other SELV.	P
2.3	TNV circuits		N
2.3.1	Limits	No TNV circuits	N
	Type of TNV circuits		—

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Clause	Requirement	Remark	Result
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed.....		—
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed.....		—
2.3.5	Test for operating voltages generated externally		N
2.4	Limited current circuits		P
2.4.1	General requirements	Limited are not exceeded.	P
2.4.2	Limit values	(see appended table 2.4.2)	P
	Frequency (Hz)		—
	Measured current (mA).....		—
	Measured voltage (V)		—
	Measured circuit capacitance (nF or μ F).....		—
2.4.3	Connection of limited current circuits to other circuits	Under normal operating condition, no fault condition can cause higher current.	P
2.5	Limited power sources		P
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition	A regulating network limits the output in compliance with table 2B both under normal operating conditions and after any single fault.	P
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....		—
	Current rating of overcurrent protective device (A) ..		—
	Use of integrated circuit (IC) current limiters		N
2.6	Provisions for earthing and bonding		N
2.6.1	Protective earthing	Class II equipment	N
2.6.2	Functional earthing	No functional earthing.	N

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Clause	Requirement	Remark	Result
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Size of protective bonding conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG		—
	Protective current rating (A), cross-sectional area (mm ²), AWG.....		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)		N
2.6.3.5	Colour of insulation		N
2.6.4	Terminals		---
2.6.4.1	General		---
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type, nominal thread diameter (mm).....		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N
2.7	Overcurrent and earth fault protection in primary circuits		--
2.7.1	Basic requirements	Protective device is integrated in the equipment, see also Sub-clause 5.3.	P
	Instructions when protection relies on building installation	Protective device is integrated in the equipment.	P
2.7.2	Faults not simulated in 5.3.7		N
2.7.3	Short-circuit backup protection	Adequate protective device.	P

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Clause	Requirement	Remark	Result
2.7.4	Number and location of protective devices	One fuse F1 located at line conductor	P
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel		N
2.8	Safety interlocks		N
2.8.1	General principles	No safety interlocks.	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches and relays		N
2.8.7.1	Contact gaps (mm)		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test		N
2.8.8	Mechanical actuators		N
2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic material are used as insulation. No driving belts or couplings used.	N
2.9.2	Humidity conditioning	Humidity treatment performed for 48h	P
	Relative humidity (%), temperature (°C)	Temperature: 30°C, RH: 93%	—
2.9.3	Grade of insulation	Insulation is considered to be functional, reinforced or double insulation.	P
2.9.4	Separation from hazardous voltages	See below	P
	Method(s) used	Method 1 is used.	—
2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See below	P
2.10.1.1	Frequency	Considered.	P
2.10.1.2	Pollution degrees	Pollution degree 2	P
2.10.1.3	Reduced values for functional insulation	The functional insulation complied with clause 5.3.4.	P
2.10.1.4	Intervening unconnected conductive parts	Considered	P
2.10.1.5	Insulation with varying dimensions	No such transformer used.	N

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Clause	Requirement	Remark	Result
2.10.1.6	Special separation requirements	Special separation is not used.	N
2.10.1.7	Insulation in circuits generating starting pulses	The circuit will not generate starting pulse	N
2.10.2	Determination of working voltage	(See appended table 2.10.2)	P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	(See appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(See appended table 2.10.2)	P
2.10.3	Clearances	(See appended table 2.10.3 and 2.10.4)	P
2.10.3.1	General	Refer below	P
2.10.3.2	Mains transient voltages	2500V peak	P
	a) AC mains supply		—
	b) Earthed d.c. mains supplies		—
	c) Unearthed d.c. mains supplies		—
	d) Battery operation		—
2.10.3.3	Clearances in primary circuits	(See appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits		N
2.10.3.5	Clearances in circuits having starting pulses		N
2.10.3.6	Transients from a.c. mains supply	Considered	P
2.10.3.7	Transients from d.c. mains supply		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains supply		—
	For an a.c. mains supply		—
	For a d.c. mains supply		—
	b) Transients from a telecommunication network :		—
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	Considered.	P
2.10.4.2	Material group and comparative tracking index	See below	P
	CTI tests.....	Material group IIIb is assumed to be used.	—
2.10.4.3	Minimum creepage distances	(See appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation	See below	P
2.10.5.1	General	Considered	P
2.10.5.2	Distances through insulation	See appended table 2.10.5	P

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Clause	Requirement	Remark	Result
2.10.5.3	Insulating compound as solid insulation	For optocouplers, see appended table 1.5.1.	P
2.10.5.4	Semiconductor devices	For optocouplers, see appended table 1.5.1.	P
2.10.5.5.	Cemented joints		N
2.10.5.6	Thin sheet material – General		P
2.10.5.7	Separable thin sheet material		P
	Number of layers (pcs) :	Refer to Annex C and appended table 2.10.5	—
2.10.5.8	Non-separable thin sheet material	Not used.	N
2.10.5.9	Thin sheet material – standard test procedure	The sub-clause 2.10.5.10 is used.	N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure	(see appended table 2.10.5)	P
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components	Not used insulation in wound components.	N
2.10.5.12	Wire in wound components		P
	Working voltage :	(see appended table 2.10.2)	P
	a) Basic insulation not under stress :		N
	b) Basic, supplementary, reinforced insulation :		N
	c) Compliance with Annex U :	(See appended Table 1.5.1)	P
	Two wires in contact inside wound component; angle between 45° and 90° :	Protection against mechanical stress is provided by insulation tube.	P
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		—
	Routine test		—
2.10.5.14	Additional insulation in wound components	No used	N
	Working voltage :		—
	- Basic insulation not under stress :		—
	- Supplementary, reinforced insulation :		—
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards	No special coating in order to reduce distances.	N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N

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Clause	Requirement	Remark	Result
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs) :		N
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components	No special coating in order to reduce distance.	N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling	No special insulation in order to reduce distance.	N
2.10.10	Test for Pollution Degree 1 environment and insulating compound	The equipment is Pollution Degree 2	N
2.10.11	Tests for semiconductor devices and cemented joints	No such device used.	N
2.10.12	Enclosed and sealed parts	No such device used.	N
3	WIRING, CONNECTIONS AND SUPPLY		--
3.1	General		P
3.1.1	Current rating and overcurrent protection	Adequate cross sectional areas on internal wires.	P
3.1.2	Protection against mechanical damage	Wire do not touch sharp edges which could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators	No used	N
3.1.6	Screws for electrical contact pressure	No screw for electrical contact.	N
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating material.	P
3.1.8	Self-tapping and spaced thread screws	Not used	N
3.1.9	Termination of conductors	Terminations cannot become displaced so that clearances and creepage distances can be reduced.	P
	10 N pull test	Conducted.	P
3.1.10	Sleeving on wiring		N
3.2	Connection to a mains supply		P
3.2.1	Means of connection	Refer below	P

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Clause	Requirement	Remark	Result
3.2.1.1	Connection to an a.c. mains supply	The equipment is intended for direct plug-in.	P
3.2.1.2	Connection to a d.c. mains supply	Not for connection to a d.c mains supply	N
3.2.2	Multiple supply connections	Only one supply connection.	N
3.2.3	Permanently connected equipment	The equipment is not intended for permanent connection to the mains.	N
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets		N
3.2.5	Power supply cords	Refer below	N
3.2.5.1	AC power supply cords	Direct plug-in equipment	N
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords	The equipment is not for connecting to d.c. mains.	N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N
3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals	The equipment is intended for direct plug-in.	N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N

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Clause	Requirement	Remark	Result
3.4	Disconnection from the mains supply		P
3.4.1	General requirement	See below	P
3.4.2	Disconnect devices	The plug is used as disconnect device.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles – single-phase and d.c. equipment	Disconnect both poles simultaneously	P
3.4.7	Number of poles – three-phase equipment	Single phase equipment.	N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		N
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N
3.5	Interconnection of equipment		P
3.5.1	General requirements	Considered	P
3.5.2	Types of interconnection circuits	SELV circuit	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection	N
3.5.4	Data ports for additional equipment		N
4	PHYSICAL REQUIREMENTS		--
4.1	Stability		N
	Angle of 10°	Mass < 7kg	N
	Test force (N)	The unit is not floor-standing	N
4.2	Mechanical strength		P
4.2.1	General		P
	Rack-mounted equipment.		N
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test	Direct plug-in equipment.	N
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm)	No hazard as result from the drop test at 1000mm height.	P

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Clause	Requirement	Remark	Result
4.2.7	Stress relief test	Test is carried out at 82.3°C / 7hrs. No risk of shrinkage or distortion on enclosures due to release of internal stresses.	P
4.2.8	Cathode ray tubes	CRT(s) not used in the equipment	N
	Picture tube separately certified		N
4.2.9	High pressure lamps		N
4.2.10	Wall or ceiling mounted equipment; force (N)		N
4.2.11	Rotating solid media		N
	Test to cover on the door.....		N

4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners are rounded and/or smoothed.	P
4.3.2	Handles and manual controls; force (N).....	No knobs, grips, handles, lever etc.	N
4.3.3	Adjustable controls		N
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur.	P
4.3.5	Connection by plugs and sockets		P
4.3.6	Direct plug-in equipment		P
	Torque	<0.25Nm	—
	Compliance with the relevant mains plug standard		P
4.3.7	Heating elements in earthed equipment	No heating elements	N
4.3.8	Batteries	No batteries used.	N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
4.3.9	Oil and grease		N
4.3.10	Dust, powders, liquids and gases		N
4.3.11	Containers for liquids or gases		N
4.3.12	Flammable liquids	The equipment does not contain flammable liquid	N
	Quantity of liquid (l)		N
	Flash point (°C)		N
4.3.13	Radiation		N
4.3.13.1	General		N

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Clause	Requirement	Remark	Result
4.3.13.2	Ionizing radiation	No ionizing radiation	N
	Measured radiation(pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV).....		—
	CRT markings.....		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N
	Part, property, retention after test, flammability classification		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N
4.3.13.5	Lasers (including laser diodes) and LEDs		N
4.3.13.5.1	Lasers (including laser diodes)	No such equipment	N
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)		N
4.3.13.6	Other types		N
4.4	Protection against hazardous moving parts		N
4.4.1	General	No moving parts	N
4.4.2	Protection in operator access areas		N
	Household and home/office document/media shredders		N
4.4.3	Protection in restricted access locations		N
4.4.4	Protection in service access areas		N
4.4.5	Protection against moving fan blades		N
4.4.5.1	General		N
	Not considered to cause pain or injury. A).....		N
	Is considered to cause pain, not injury. B)		N
	Considered to cause injury. C)		N
4.4.5.2	Protection for users		N
	Use of symbol or warning		N
4.4.5.3	Protection for service persons		N
	Use of symbol or warning		N
4.5	Thermal requirements		P
4.5.1	General	See below	P
4.5.2	Temperature tests	(see appended table 4.5)	P
	Normal load condition per Annex L		—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat	(see appended table 4.5)	P

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Clause	Requirement	Remark	Result
4.6	Openings in enclosures		N
4.6.1	Top and side openings	No openings	N
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures	No openings	N
	Construction of the bottom, dimensions (mm) .. :		—
4.6.3	Doors or covers in fire enclosures	No doors or covers	N
4.6.4	Openings in transportable equipment	Not transportable equipment.	N
4.6.4.1	Constructional design measures		N
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes	Not used Adhesives for constructional purposes.	N
	Conditioning temperature (°C), time (weeks)		—
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Method 1 used	P
	Method 1, selection and application of components wiring and materials	(see appended table 1.5.1)	P
	Method 2, application of all of simulated fault condition tests		N
4.7.2	Conditions for a fire enclosure	Fire enclosure is provided	P
4.7.2.1	Parts requiring a fire enclosure	The fire enclosure is required to cover all part.	P
4.7.2.2	Parts not requiring a fire enclosure		N
4.7.3	Materials		P
4.7.3.1	General	Components and materials have adequate flammability classification. (see appended table 1.5.1.)	P
4.7.3.2	Materials for fire enclosures	Plastic enclosure: V-0	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N
4.7.3.4	Materials for components and other parts inside fire enclosures	Min. V-2	P
4.7.3.5	Materials for air filter assemblies		N
4.7.3.6	Materials used in high-voltage components		N
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		--
5.1	Touch current and protective conductor current		P
5.1.1	General		P

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Clause	Requirement	Remark	Result
5.1.2	Configuration of equipment under test (EUT)		--
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply	No multiple power sources.	N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	No multiple power sources.	N
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument	Using measuring instrument in annex D.	P
5.1.5	Test procedure		P
5.1.6	Test measurements	See below	P
	Supply voltage (V)	264V, 60Hz	—
	Measured touch current (mA)	(See appended table 5.1)	—
	Max. Allowed touch current (mA)	(See appended table 5.1)	—
	Measured protective conductor current (mA)		—
	Max. Allowed protective conductor current (mA)..		—
5.1.7	Equipment with touch current exceeding 3,5mA	The touch current does not exceed 3.5mA.	N
5.1.7.1	General		N
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. Allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N
	a) EUT with earthed telecommunication ports		N
	b) EUT whose telecommunication ports have no reference to protective earth		N
5.2	Electric strength		P
5.2.1	General	(See appended table 5.2)	P
5.2.2	Test procedure	(See appended table 5.2)	P
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(See appended table 5.3)	P

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Clause	Requirement	Remark	Result
5.3.2	Motors		N
5.3.3	Transformers	(see appended Annex C and table 5.3)	P
5.3.4	Functional insulation	By short circuit	P
5.3.5	Electromechanical components	No electromechanical component.	N
5.3.6	Audio amplifiers in ITE	No audio amplifiers.	N
5.3.7	Simulation of faults	(See appended table 5.3.)	P
5.3.8	Unattended equipment		N
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests		P
5.3.9.2	After the tests		P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements		N
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N
6.2	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N
6.2.2.3	Compliance criteria		N
6.3	Protection of the telecommunication wiring system from overheating		N
	Max. output current (A)		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N
7.1	General	Not connected to the cable distribution systems.	N
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N

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Clause	Requirement	Remark	Result
7.3	Protection of equipment users from overvoltages on the cable distribution system		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N
A.1.1	Samples		—
	Wall thickness (mm)		—
A.1.2	Conditioning of samples; temperature (°C)		N
A.1.3	Mounting of samples		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D		—
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N
A.2.1	Samples, material		—
	Wall thickness (mm)		—
A.2.2	Conditioning of samples; temperature (°C)		N
A.2.3	Mounting of samples		N
A.2.4	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C		—
A.2.5	Test procedure		N
A.2.6	Compliance criteria		N
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. To IEC 60695-11-5, cl. 5 and 9		N
	Sample 1 burning time (s)		—

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Clause	Requirement	Remark	Result
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N
A.3.1	Mounting of samples		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N
B.1	General requirements		N
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V)		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V)		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V)		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position		—

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Clause	Requirement	Remark	Result
	Manufacturer	See appended table 1.5.1.	—
	Type	See appended table 1.5.1.	—
	Rated values	See appended table 1.5.1.	—
	Method of protection.....	Inherent	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation		P
	Protection from displacement of windings	By bobbin and insulation tape	P
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	Figure D.1 used.	P
D.2	Alternative measuring instrument	Measuring instrument D1 is used.	N
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.2.1	AC mains supply		N
G.2.2	Earthed d.c. mains supplies		N
G.2.3	Unearthed d.c. mains supplies		N
G.2.4	Battery operation		N
G.3	Determination of telecommunication network transient voltage (V)		N
G.4	Determination of required withstand voltage (V)		N
G.4.1	Mains transients and internal repetitive peaks		N
G.4.2	Transients from telecommunication networks		N
G.4.3	Combination of transients		N
G.4.4	Transients from cable distribution systems		N
G.5	Measurement of transient voltages (V)		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N

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Clause	Requirement	Remark	Result
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances		N
H	ANNEXH, IONIZING RADIATION (see 4.3.13)		N
J	ANNEXJ, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N
	Metal(s) used		—
K	ANNEXK, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V)		N
K.3	Thermostat endurance test; operating voltage (V):		N
K.4	Temperature limiter endurance; operating voltage (V)		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation		N
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		--
L.1	Typewriters		N
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment		P
M	ANNEXM, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringling signal		N
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA)		—
M.3.2	Tripping device and monitoring voltage		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N

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Clause	Requirement	Remark	Result
M.3.2.3	Monitoring voltage (V)		N
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and ClauseG.5)		N
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N
	a) Preferred climatic categories		N
	b) Maximum continuous voltage		N
	c) Pulse current		N
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N
R.2	Reduced clearances (see 2.10.3)		N
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see1.1.2)		N
U	ANNEXU, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		P
V	ANNEXV, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction	TN, TT	P
V.2	TN power distribution systems		P
W	ANNEXW, SUMMATION OF TOUCH CURRENTS		N
W.1	Touch current from electronic circuits		N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N

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Clause	Requirement	Remark	Result
W.2.3	Common return, connected to protective earth		N
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		P
X.1	Determination of maximum input current		P
X.2	Overload test procedure		P
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N
Y.1	Test apparatus		N
Y.2	Mounting of test samples		N
Y.3	Carbon-arc light-exposure apparatus		N
Y.4	Xenon-arc light exposure apparatus		N
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		P
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	Annex CC, Evaluation of integrated circuit (IC) current limiters		N
CC.1	General		N
CC.2	Test program 1.....		N
CC.3	Test program 2.....		N
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N
DD.1	General		N
DD.2	Mechanical strength test, variable N.....		N
DD.3	Mechanical strength test, 250N, including end stops.....		N
DD.4	Compliance.....		N
EE	ANNEX EE, Household and home/office document/media shredders		N
EE.1	General		N
EE.2	Markings and instructions		N
	Use of markings or symbols.....		N
	Information of user instructions, maintenance and/or servicing instructions.....		N
EE.3	Inadvertent reactivation test.....		N
EE.4	Disconnection of power to hazardous moving parts:		N
	Use of markings or symbols.....		N

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Clause	Requirement	Remark	Result
EE.5	Protection against hazardous moving parts		N
	Test with test finger (Figure 2A)		N
	Test with wedge probe (Figure EE1 and EE2)		N

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity 1)	
Enclosure	Various	Various	PC, V-0, 120°C, min. thickness 2.0mm	--	UL	
PCB	Tian Feng Wei	T-V0	V-0, min. 130°C	--	UL E340994	
Internet wire	CHENGXING	1007	Min. 300Vac, min. 80°C, max. VW-1, min. 24AWG	--	UL	
Fuse	LITTELFUSE INC	257	40A, 32V	--	UL	
Appliance Wiring	GUANGDONG HICHAIN ELECTRICITY CO LTD	Various	2.5mm ² , 450V	--	VDE UL E304337	
Transformer	Various	Various	Class B	IEC/EN6095 0-1	Tested with appliance	
Bobbin	Chang Chun	T375J	Phenolic, V-0, 150°C, min. 0.71mm thickness	--	UL E59481	
Insulation tape	Jingjiang Yahua	CT	130°C	--	UL E165111	
Triple wire used in secondary	Furukawa	TEX-E	130°C	IEC/EN 60950-1	VDE 06735 UL E206440	
Tubing	Great Holding	TFL, TFT, TFS	200°C, VW-1	--	UL E156256	
(Alt.)	Various	Various	Min. 130°C, VW- 1	--	UL	
Varnish	Zhuhai Chang Xian	E962	Min. 130°C	--	UL E335405	
(Alt.)	Various	Various	Min. 130°C	--	UL	

1.6.2	TABLE: Electrical data (in normal conditions)					P
Fuse #	Irated (A)	U (V)	P (W)	I (A)	Ifuse (A)	Condition/status
F1	--	58.5	2110.9	36.1	36.1	Normal working
F1	40	65	2358.4	36.3	36.3	
F1	40	160	6157.3	38.5	38.5	
	--	175	6161.1	38.6	38.6	
Supplementary information:						

2.1.1.5	TABLE: max. V, A, VA test				N
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
--	--	--	--	--	
supplementary information:					

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components	
	V peak	V d.c.		
T1 A to B	68.2	--	N/A	
After D20	--	65.2	D20	
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)			
D20 (S-C)	0V*)			
supplementary information:				
Vin=175Vac				
*) Output shut down.				

2.4.2	TABLE: limited current circuit measurement				N
Location	Voltage (V)	Current (mA)	Freq. (KHz)	Limit (mA)	
--	--	--	--	0.7	
supplementary information:					

2.5	TABLE: limited power sources				P
Circuit output tested:					
Measured Uoc (V) with all load circuits disconnected:					
	I _{sc} (A)		VA		
	Meas.	Limit	Meas.	Limit	
Normal condition Uoc=175V	1.7	≤ 8.0 A	10.05	≤ 100 VA	
supplementary information:					

2.10.2	Table: working voltage measurement			P
Location	RMS voltage (V)		Peak voltage (V)	Comments
T1	Pin A	259	416	
	Pin B	261	425	Max. RMS voltage & Peak voltage

U5	Pin1-Pin3	235	388	
	Pin1-Pin4	233	392	
	Pin2-Pin3	231	382	
	Pin2-Pin4	230	383	
Supplementary information:				
Vin = 175Vac				

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Line and Neutral before fuse	423	250	2.0	2.7	2.5	3.2	
Two poles of fuse	423	250	2.0	2.6	2.5	3.1	
T1 Primary to secondary on PCB	513	266	4.4	6.5	5.4	6.4	
T1 core to secondary	513	266	4.4	7.0	5.3	8.6	
Supplementary information:							

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Plastic enclosure	421	240	3000	0.4	2.5	
2 layers insulation tape outside of T1 (tested one layer)	421	240	3000	2 layers	2 layers	
Supplementary information:						
No flash over or insulation breakdown after test.						

4.3.8	TABLE: Batteries								N
The tests of 4.3.8 are applicable only when appropriate battery data is not available								--	--
Is it possible to install the battery in a reverse polarity position?								--	--
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. Current	Manuf. Specs.		Meas. Current	Manuf. Specs.	Meas. Current	Manuf. Specs.	Meas. Current	Manuf. Specs.
Max. current during normal condition	—	—	—	—	—	—	—	—	—
Max. current during fault condition	—	—	—	—	—	—	—	—	—
Test results:								Verdict	
- Chemical leaks								—	—
- Explosion of the battery								—	—
- Emission of flame or expulsion of molten metal								—	—
- Electric strength tests of equipment after completion of tests								—	—
Supplementary information:									

4.5	TABLE: Thermal requirements						P	
	Supply voltage (V)	58.5V 1)*	175V 2)*				—	
	Maximum measured temperature T of part/at:	T (°C)					Allowed T _{max} (°C)	
	PCB near T1	101.7	102.6				130	
	T1 winding	103.7	102.3				110	
	T1 core	97.5	98.7				110	
	Enclosure inside near T1(Top)	70.5	76.3				Ref.	
	Enclosure inside near T1(Bottom)	64.7	70.2				Ref.	
	Enclosure outside near T1(Top)	68.7	72.8				95	
	Enclosure outside near T1(Bottom)	63.8	69.6				95	
	Ambient	40.0	40.0				--	
	Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
	—	—	—	—	—	—	—	B
Supplementary information:								
1)* represent horizontal;								
2)* represent vertical;								

4.5.5	TABLE: Ball pressure test of thermoplastic parts			P
	Allowed impression diameter (mm)	≤2mm		—
	Part	Test temperature (°C)	Impression diameter (mm)	
	Transformer bobbin	125	0.53	
	--	--	--	
Supplementary information:				

4.7	TABLE: Resistance to fire					N
	Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
	--	--	--	--	--	--
Supplementary information: See list of critical components for details						

5.1	TABLE: touch current measurement				P
	Measured between:	L→terminal (mA)	N→terminal (mA)	Limit (mA)	Comments/conditions

Plastic enclosure	0.06	0.06	0.25	Normal load condition
Output terminal	0.08	0.08	0.25	Load/No load condition
Note(s): Supply voltage: 264V/50Hz.				

5.2	TABLE: Electric strength tests and impulse tests			P
Test voltage applied between:		Test voltage (Vac)		Breakdown Yes / No
Live – Neutral (disconnected fuse)		1500		No
L/N to plastic enclosure		3000		No
L/N to output terminal		3000		No
Transformer primary pin to secondary pin		3000		No
Transformer secondary to core		3000		No
1 layers of insulation tape(for each type)		3000		No
Note:				

5.3	TABLE: Fault condition tests					P
Ambient temperature (°C)		25.1		—		
Power source for EUT: Manufacturer, model/type, output rating		Refer to page 1		—		
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
T1 Pin(1-2)	s-c	264	1 s	F1	38.6	F1 ,U1 damaged instantly. No hazard.
T1 Pin(A-B)	s-c	264	10mins	F1	38.6	Unit shut down immediately. Recoverable when fault removed. No damaged. No hazard.
U2 Pin(3-4)	s-c	264	1 s	F1	38.6	F1 opened instantly. No hazard.
Output terminal	s-c	264	10mins	F1	38.6	Unit shut down immediately. Recoverable when fault removed. No damaged. No hazard.
Output terminal	o-l	264	7hours	F1	38.6	Unit shut down, when loading 12Vdc, 1.75A. No damaged, no hazard, Recoverable when the fault removed. Max. temp: T1 coil: 103.7°C T1 core: 98.7°C Ambient: 40°C
Supplementary information: S-C=short circuit; O-L=overload; O-C=open circuit.						

Attachment I Photos of Product

Photo 1

view

- front
- back
- side
- top
- internal
- bottom



Photo 2

view

- front
- back
- side
- top
- internal
- bottom



Photo 3

view

- front
- back
- side
- top
- internal
- bottom

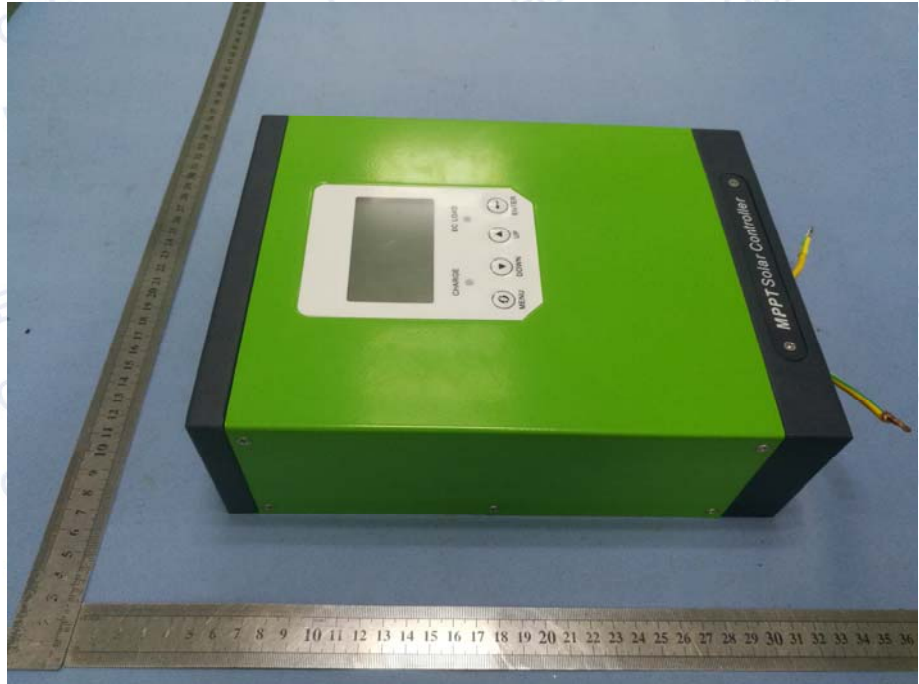


Photo 4

view

- front
- back
- side
- top
- internal
- bottom



Photo 5
view

- front
- back
- side
- top
- internal
- bottom

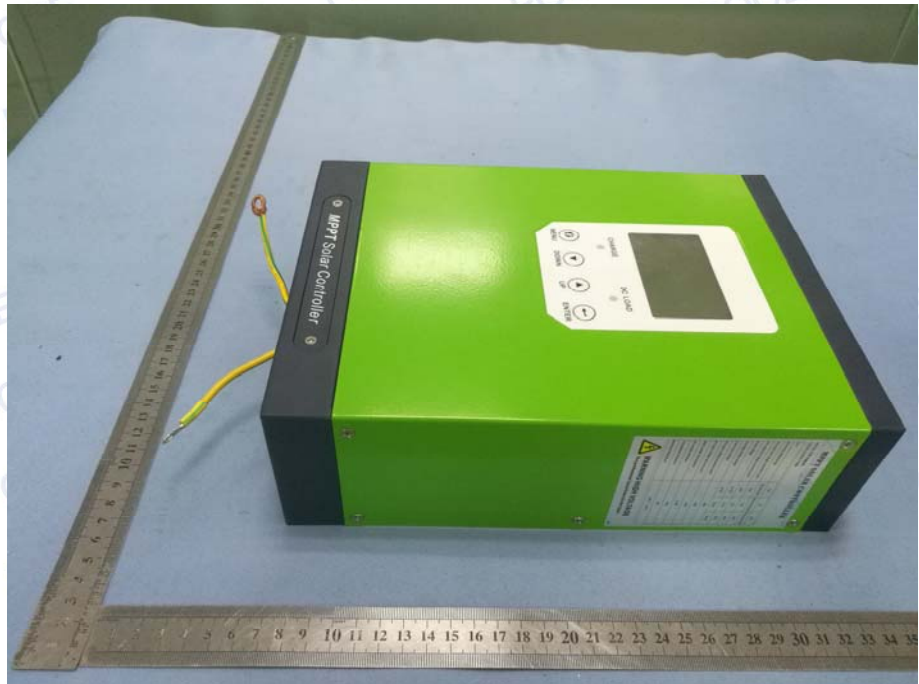


Photo 6
view

- front
- back
- side
- top
- internal
- bottom

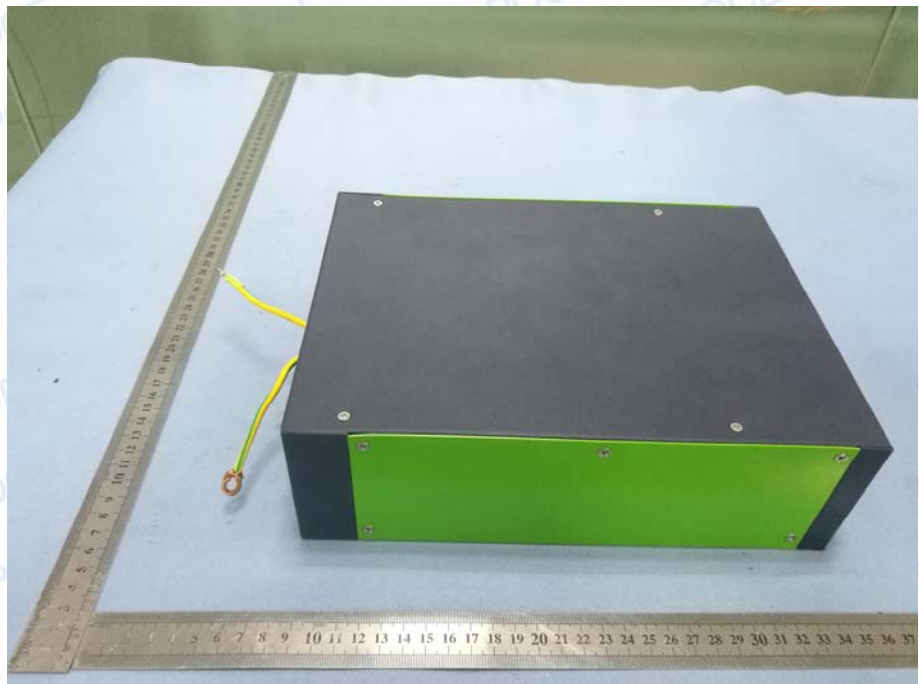


Photo 7
view

- front
- back
- side
- top
- internal
- bottom

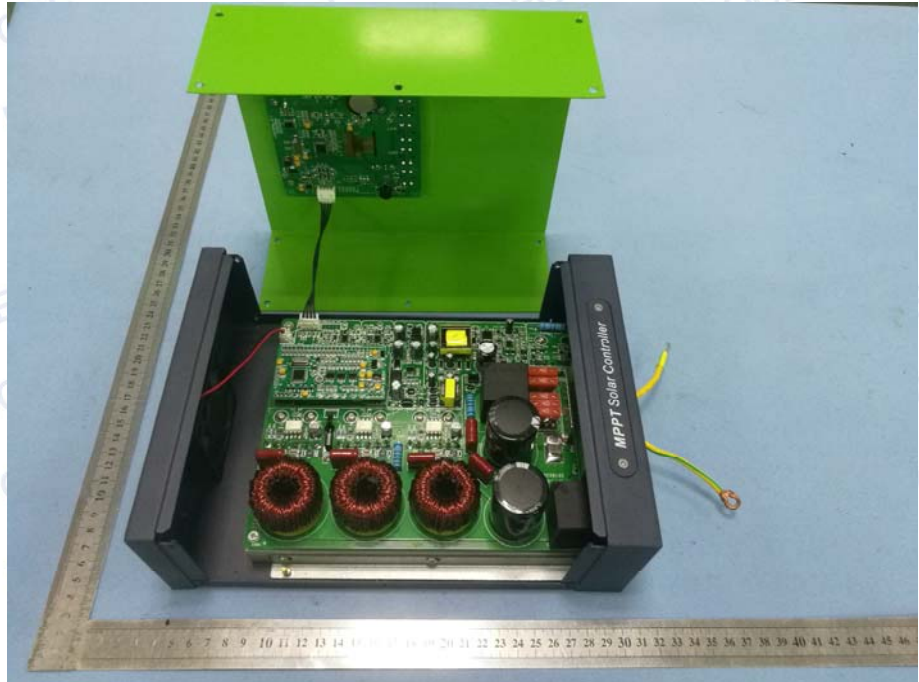


Photo 8
view

- front
- back
- side
- top
- internal
- bottom



Photo 9

view

- front
- back
- side
- top
- internal
- bottom

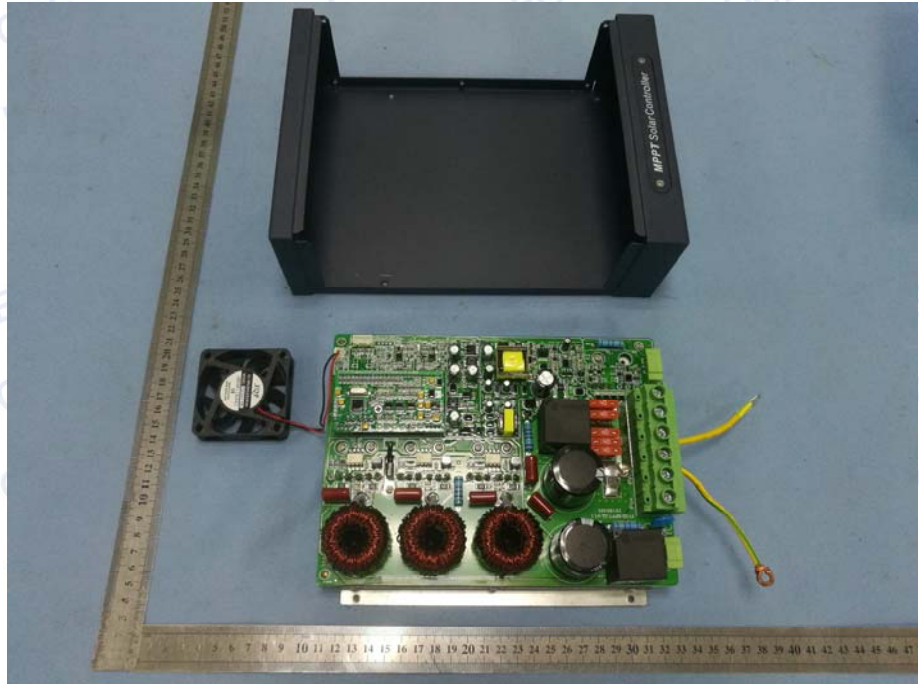


Photo 10

view

- front
- back
- side
- top
- internal
- bottom



Photo 11

view

- front
- back
- side
- top
- internal
- bottom

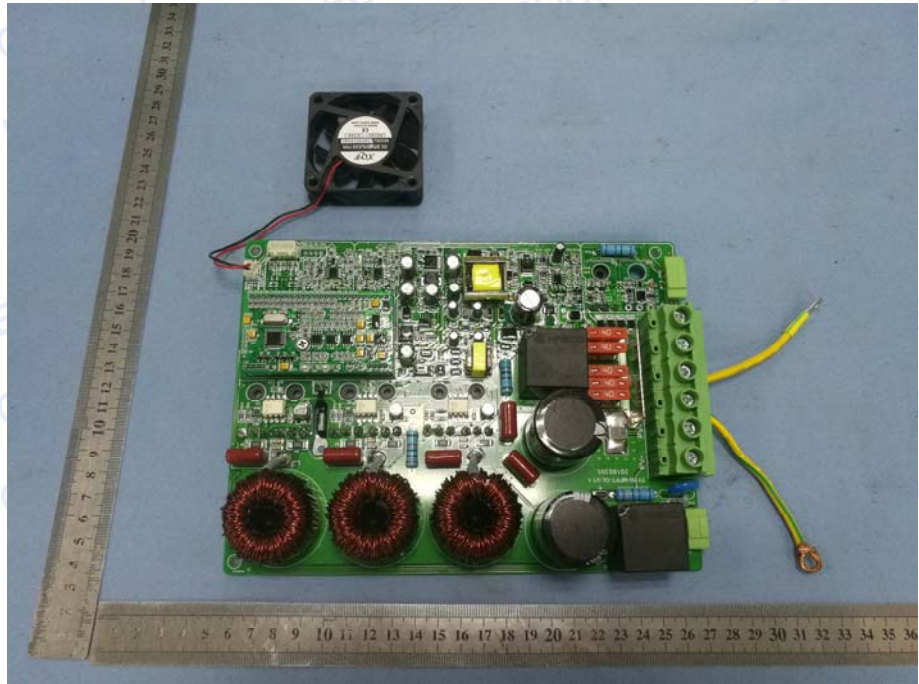


Photo 12

view

- front
- back
- side
- top
- internal
- bottom

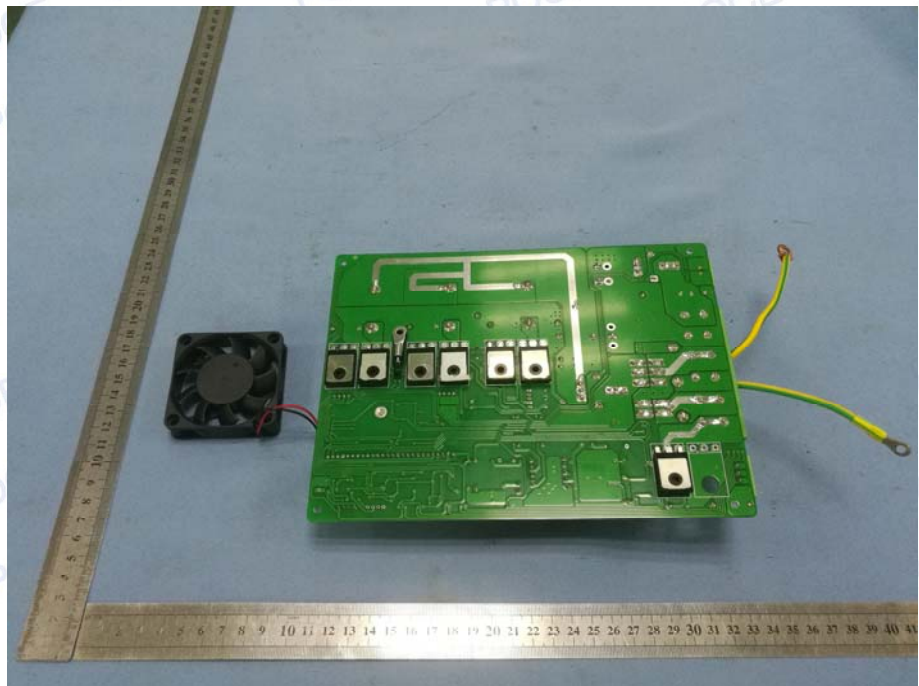


Photo 13

view

- front
- back
- side
- top
- internal
- bottom

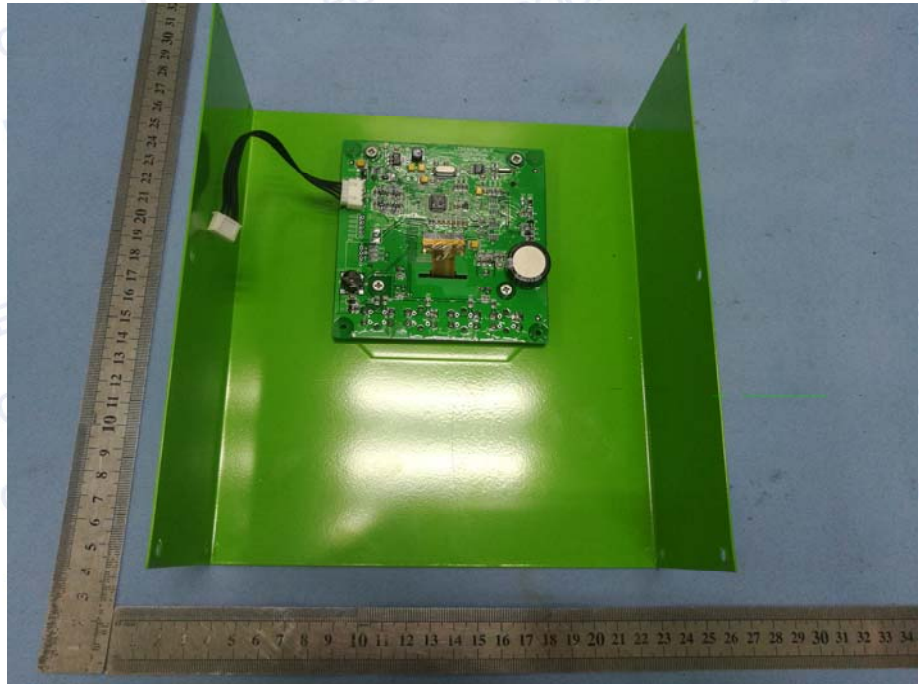


Photo 14

view

- front
- back
- side
- top
- internal
- bottom

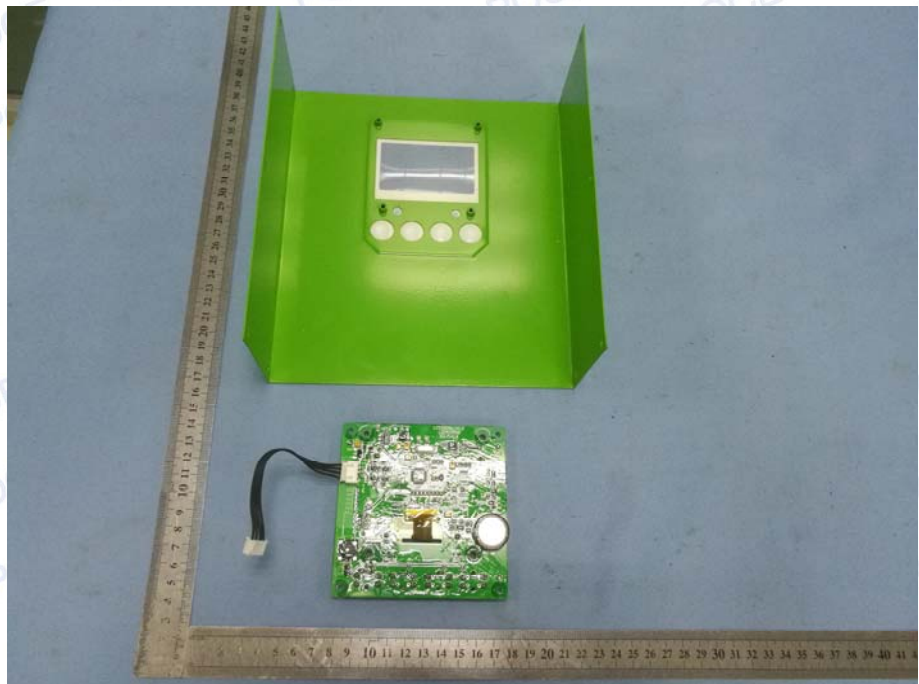


Photo 15
view

- front
- back
- side
- top
- internal
- bottom

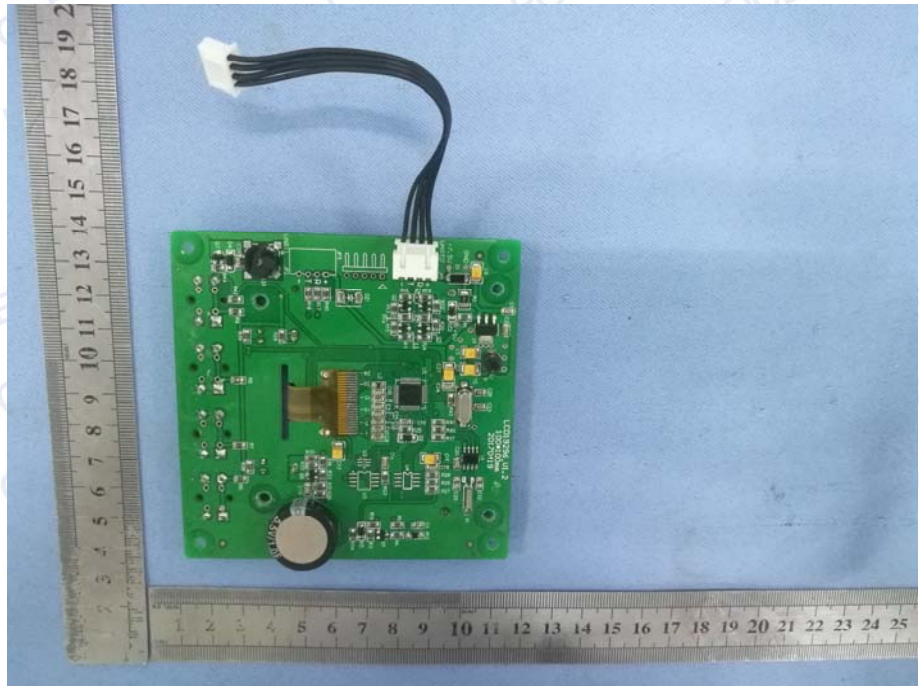
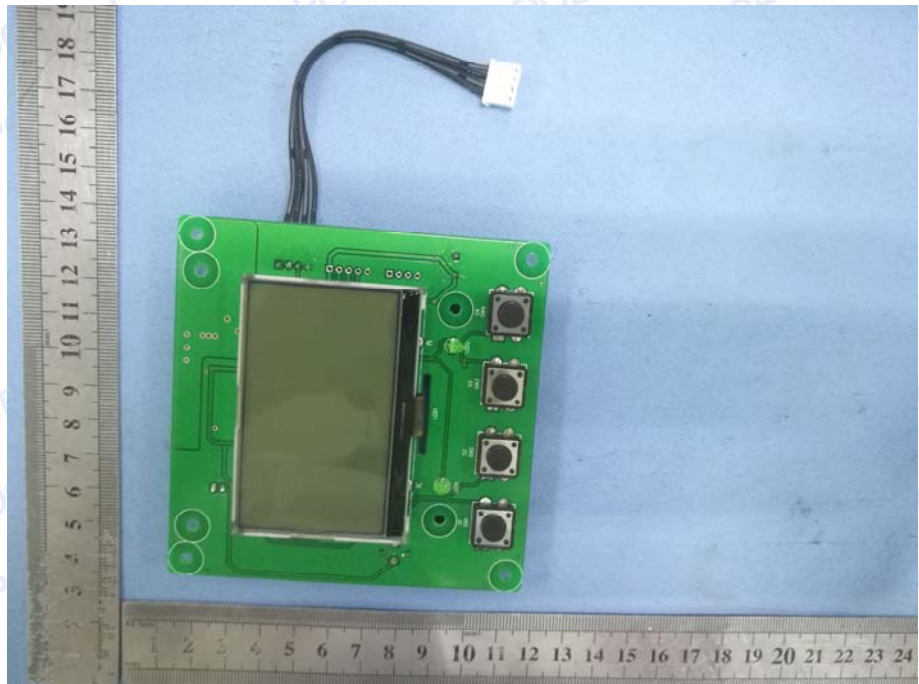


Photo 16
view

- front
- back
- side
- top
- internal
- bottom



----- End of Report -----