

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:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	AC-DC Converter
Model:	LH15-10C0505-05&, LH15-10C0512-02&, LH15-10C0515-02&, LH15-10C0524-01& (variable "&" can be none, A2, A3 or A4. If "&" is none, it means standard module; if "&" is A2 or A3, it means chassis mounting; if "&" is A4, it means DIN-Rail mounting.)
Rating:	I/P: 100-240Vac, 50-60Hz, 0.37A O/P: Model: LH15-10C0505-05&, 5Vdc/2000mA, ±5Vdc/500mA; Model: LH15-10C0512-02&, 5Vdc/2000mA, ±12Vdc/200mA; Model: LH15-10C0515-02&, 5Vdc/1800mA, ±15Vdc/200mA; Model: LH15-10C0524-01& 5Vdc/2000mA, ±24Vdc/100mA;
Applicant Name and Address:	MORNSUN GUANGZHOU SCIENCE & TECHNOLOGY LTD 5 KEHUI ST 1 KEHUI DEVELOPMENT CENTER SCIENCE AVE, GUANGZHOU SCIENCE CITY LUOGANG DISTRICT GUANGZHOU GUANGDONG 510000 CHINA

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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

Prepared by: Levis Wang

Reviewed by: Roy Xie

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
 - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
 - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
 - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

The unit covered in this report is a building-in AC-DC Converter for use in information technology equipment, electrical components are mounted on PWB, filled by adhesive compound, and then housed with plastic enclosure.

Model Differences

The Models LH15-10C0505-05&, LH15-10C0512-02&, LH15-10C0515-02& and LH15-10C0524-01& are identical to each other except for model number, the output rating, winding of transformer secondary which in wire diameter and turns, the turns of transformer feedback winding and parameter of some components are difference.

Technical Considerations

- 1. Equipment mobility : for building-in
- 1. Connection to the mains : built-in component, consider in end system
- 1. Operating condition : continuous
- 1. Access location : To be determined in the end product
- 1. Over voltage category (OVC) : OVC II
- 1. Mains supply tolerance (%) or absolute mains supply values : +10%, -10% (Declared by Manufacturer)
- 1. Tested for IT power systems : No
- 1. IT testing, phase-phase voltage (V) : N/A
- 1. Class of equipment : Class II (double insulated)
- 1. Considered current rating of protective device as part of the building installation (A) : 16A (20A for USA and Canada)
- 1. Pollution degree (PD) : PD 2
- 1. IP protection class : IP X0
- 1. Altitude of operation (m) : up to 2000
- 1. Altitude of test laboratory (m) : less than 2000
- 1. Mass of equipment (kg) : Approx. 85g/135g/135g/175g (standard module/ A2 chassis mounting/A3

chassis mounting/ A4 chassis mounting)

1. The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 55°C at 100% load, 70°C at 40% load
1. The means of connection to the mains supply is: Built-in component, to be determined in end system
1. The product is intended for use on the following power systems: TN
1. The equipment disconnect device is considered to be: determined in end system
1. The following accessible locations (with circuit/schematic designation) are within a limited current circuit: CY1 secondary
1. The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): All output ports
1. The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
1. LEDs provided in the product are considered low power devices: Yes

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

1. The following Production-Line tests are conducted for this product: Electric Strength
1. The end-product Electric Strength Test is to be based upon a maximum working voltage of: 276 Vrms, 512Vpk
1. The following secondary output circuits are SELV: All output ports
1. The following secondary output circuits are Limited Current Circuits: CY1 secondary
1. The power supply terminals and/or connectors are: Suitable for factory wiring only
1. The maximum investigated branch circuit rating is: 20 A
1. The investigated Pollution Degree is: 2
1. An investigation of the protective bonding terminals has: Not been conducted
1. The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T1,T2,T3,T4 (Class B)
1. The following end-product enclosures are required: Mechanical, Electrical, Fire
1. The equipment is suitable for direct connection to: AC mains supply
1. Abnormal/Component failure Tests in standard module were conducted with an external 250Vac/2.0A UL Recognized fuse(Column 19 and 19a in Table 1.5.1) . If use other UL recognized fuse or different rated UL listed fuse in end product, all abnormal/Component failure Tests should be re-evaluated.

Additional Information


This Test Report was based on CB Test Certificate and Test Report by the CB Scheme. The clause verdicts and test results for this Test Report were noted as N/A and have been referred to the CB Test Report for details.

Additional Standards

The product fulfills the requirements of: N/A

Markings and instructions

Clause Title	Marking or Instruction Details
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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.
Fuses - Operator caution statement	"CAUTION: For continued protection against risk of fire, replace only with same type and rating of fuse".
Special Instructions to UL Representative Inspect the transformer(s) listed in table "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 the table 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, T2, T3, T4	--	primary and secondary	300 0	4242	1

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

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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
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