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)
Complementary CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Product:	Power Supply
Model:	CN200A110-xyza (x = 5, 12, 15 or 24 denote output voltage, y = "/" or blank, z = "CO" or blank, a = "T" or blank)
Rating:	Input: 60-160Vdc, 5.5A Output: See Additional Information.
Applicant Name and Address:	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN

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: Tadao Nakayama Reviewed by: Tetsuo Iwasaki

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 product tested is a built-in type Switching Power Supply for being employed in ITE used at general office environment.

Aluminum baseplate PCB is used for securing to heatsink which is provided in end product.

Model Differences

CN200A110-xyza series (x = 5, 12, 15 or 24, y = "/" or blank, z = "CO" or blank, a = "T" or blank) are identical except for output circuitry and rating, Transformer (T102) and Inductor (L151). See Table 1.5.1 and Enclosure Id. 7-01 for further information.

Suffix "/CO" denotes with coating material.
Suffix "/T" denotes no threads in the corner.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : not directly connected to the mains
- Operating condition : continuous
- Access location : N/A
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : N/A
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Not classified
- Considered current rating of protective device as part of the building installation (A) : 10 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 3000 m
- Altitude of test laboratory (m) : Approximately 10 to 20 m
- Mass of equipment (kg) : approximately 0.1
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma)

permitted by the manufacturer's specification of: 100°C (at Baseplate PCB)

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:

- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 210Vrms, 438Vpk, Primary-Earthed Dead Metal: 160Vrms, 196Vpk
- The following secondary output circuits are SELV: All outputs (if Baseplate earthed). See below for details.
- The following secondary output circuits are at hazardous energy levels: All outputs.
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required (Baseplate)
- An investigation of the protective bonding terminals has: Not been conducted
- The following end-product enclosures are required: Fire, Electric
- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: Baseplate PCB (maximum 100°C)
- Baseplate shall be earthed in end-product to maintain SELV output.
- Unit was tested with an external 10A Listed fuse placed at input.
- The product was accessed for use with non-isolated mains derived DC supply where the mains source is up to 115Vac.
- The following secondary output circuits are ES1: All
- The following secondary output circuits are at PS3 energy level: All
- Humidity conditioning has been conducted by tropical condition.
- Classification of PIS has not been conducted. Therefore, all electrical components and conductors including printed wirings were assumed to be arcing/resistive PIS.
- This component has been evaluated in "control of fire spread" method assuming appropriate fire enclosure is provided in end product. Unless the fire enclosure is made of non-combustible or V-0 material, the separation from the PIS shall be considered.

Additional Information

Output Information:
5Vdc (4.5 - 6Vdc) (*1), maximum 40A, maximum 200W (Model CN200A110-5)
12Vdc (10.8 - 13.2Vdc) (*1), maximum 16.7A, maximum 200.4W (Model CN200A110-12)
15Vdc (13.5 - 16.5Vdc) (*1), maximum 13.4A, maximum 201.0W (Model CN200A110-15)
24Vdc (21.6 - 26.4Vdc) (*1), maximum 8.4A, maximum 201.6W (Model CN200A110-24)

(*1): The following output voltage ranges were considered: +20%, -10% (for Model CN200A110-5) and +10%, -10% (for all models except for Model CN200A110-5).

Unless otherwise noted, all tests were conducted on Model CN200A110-24 under the following Maximum Normal Load Condition: Rated Load.

Baseplate PCB, Types PZC-131 and PZC-132 are employed for the following models.
Type PZC-131: Model CN200A110-5
Type PZC-132: Models CN200A110-12, CN200A110-15, and CN200A110-24

Additional Standards	
The product fulfills the requirements of: The product fulfills the requirements of: The product fulfills the requirements of: The product fulfills the requirements of: UL 62368-1, 2nd Edition, 2014-12-01, CAN/CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12	
Markings and instructions	
Clause Title	Marking or Instruction Details
1.7.1 Power rating - Model	Model Number
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number