

UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	Switching Power Supply
Model:	CUS1200My-zxxxxxx, CME1200Ay-zxxxxxx, CUS1200-zxxxxxx, CWS1200-zxxxxxx (y=blank; z = 24, 36, 48; xxxxxx =/CO, /CO2, /G, /SF, /CQC, other alphanumeric character, symbol or blank)
Rating:	Input: See the model list on enclosure 7-01 for details Output: See the model list on enclosure 7-01 for details
Applicant Name and Address:	TDK-LAMBDA (CHINA) ELECTRONICS CO LTD NO.95, ZHUJIANG RD, XINWU DISTRICT WUXI JIANGSU 214028 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: Star Gu / Project Handler

Reviewed By: Xing Liu / Reviewer

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 PSU is a component type switching mode power supplies intended for use with the earthed construction of IT/AV equipment.

For earthed construction (Class I), the PSU need to be reliably earthed and professionally installed and fixed with metal screws.

Model Differences

Model CME1200Ay-zxxxxxxx & CUS1200-zxxxxxxx & CWS1200-zxxxxxxx are identical to model CUS1200My-zxxxxxxx except for model name.

All models with different outputs are identical, except for the turns of transformer and the different output ratings. The appearance of cooling fins for 48V is different to 24V or 36V. See Enclosed Miscellaneous 7-01 (Model Different List) for details.

Test Item Particulars

Product group	built-in component
Classification of use by	Instructed person Skilled person
Supply Connection	AC Mains
Supply tolerance	+10%/-10%
Supply connection – type	permanent connection mating connector Terminal block
Considered current rating of protective device	20 A; Location: building
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Special installation location	restricted access area
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	Up to +70°C (operating temperature depending on equipment's load, mounting position, Refer to Enclosure 6-01 for details).

IP protection class	IPX0
Power systems	TN
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	Approx. 0.98 kg for all models

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : Up to +70°C (Ambient) (operating temperature depending on equipment's load, mounting position, Refer to Enclosure 6-01 for details).
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply : +10%/-10%
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product can be operated sea level up to 5000 m; the minimum clearance multiplied by the factor given in Table A.2 of IEC 60664-1: 1.48.
- The input circuit includes one fuse (F1A) in the Line conductor and the other fuse (F1B) is optional in neutral conductor. Overall consideration needed to re-check in the end-use product regarding addition of the second fuse having the same or better characteristics in order to comply with fusing requirements of the standard.
- All applicable tests as described in Test Case and Measurement Sections performed on models CUS1200M-24, CUS1200M-36, CUS1200M-48 to represent others.
- Mounting Direction: Mounting A be used to tested.
- For earthed construction (Class I), the PSU need to be reliably earthed and professionally installed and fixed with metal screws.

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 following product-line tests are conducted for this product : Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary – Earthed Dead Metal: _367_ Vrms/_592_ Vpk, Primary-Secondary: _367_ Vrms/_592_ Vpk
- The following output circuits are at ES1 energy levels : All output
- The following output circuits are at PS3 energy levels : All output
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral : N
- The following end-product enclosures are required : Mechanical, Electrical, Fire
- 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(Class F)
- The equipment is suitable for direct connection to : AC mains supply
- The power supply was evaluated to be used at altitudes up to : 5,000 m
- LIMITED SHORT-CIRCUIT TEST (Annex R) is to be evaluated in end products.
- BD1.2 Earthing Continuity Test is to be evaluated in end products.

Additional Information

Trademark: See Enclosed Miscellaneous 7-02 (Trademark) for details.

The load conditions used during testing: Maximum normal load for this equipment is the operation with the maximum specified DC load with maximum power condition according to the manufacturer specified.

Additional Standards

The product fulfills the requirements of: N/A

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"
Fuses – replaceable by ordinary or instructed person	(component ID: __F1A, F1B(F1B is optional__)), 'AC 300V, F20AH' located on or adjacent to fuse or fuseholder or in service manual.

Special Instructions to UL Representative

Inspect the transformer(s) listed in Production-Line Testing Requirements (Electric Strength Test Special Constructions) per BD1.1. 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.

Definition of various:

CUS1200My-zxxxxxxx, CME1200Ay-zxxxxxxx, CUS1200-zxxxxxxx, CWS1200-zxxxxxxx

(y=blank; z = 24, 36, 48; xxxxxxxx =/CO, /CO2, /G, /SF, /CQC, other alphanumeric character, symbol or blank)

(where "xxxxxxx" can be any alphanumeric character, symbol or blank, non safety relevant information.)

Variable:	Range of variable:	Content:
y	blank	Denotes for standard model
z	24, 36 or 48	Denoting output voltage 24Vdc, 36Vdc or 48Vdc.
xxxxxxx	blank	Denotes for standard model
	/CO	Denotes for single side PWB Coating
	/CO2	Denotes for double side PWB Coating
	/SF	Denotes for single fuse
	/G	Denotes for low earth Leakage current
	/CQC	Denotes for CQC approval
	other alphanumeric character, symbol	For market purposes, no construction differences and no safety impact.

Note: These suffixes may be used together (e.g. /G, /GCO)

For rating differences between the models see below tables:

Table A for rating differences between the models:							
Series Model	I/p voltage (Vac)	Freq (Hz)	I/p current (A)	Output Channel	Minimal output	Rated output (typical)	Maximum output
Forced air by build-in intake fan							
CUS1200My-24xxxxxxx CME1200Ay-24xxxxxxx CUS1200-24xxxxxxx CWS1200-24xxxxxxx	100-240	50-60	14	Main output	22.8 Vdc	24 Vdc	25.2 Vdc
22.8Vdc~25.2Vdc, Normal: 50A & 1200W max.							
Standby power (Optional)				4.8Vdc	5Vdc	5.2Vdc	
				2A	2A	1.9A	
CUS1200My-36xxxxxxx CME1200Ay-36xxxxxxx CUS1200-36xxxxxxx CWS1200-36xxxxxxx	100-240	50-60	14	Main output	34.2Vdc	36 Vdc	37.8 Vdc
34.2Vdc~37.8Vdc, Normal: 33.3A & 1198.8W max.							
Standby power (Optional)				4.8Vdc	5Vdc	5.2Vdc	
				2A	2A	1.9A	
CUS1200My-48xxxxxxx CME1200Ay-48xxxxxxx CUS1200-48xxxxxxx CWS1200-48xxxxxxx	100-240	50-60	14	Main output	45.6 Vdc	48 Vdc	50.4 Vdc
45.6Vdc~50.4Vdc, Normal: 25A & 1200W max.							
Standby power (Optional)				4.8Vdc	5Vdc	5.2Vdc	
				2A	2A	1.9A	
Remark: Operating temp.: up to +70°C (operating temperature depending on equipment's load, mounting position, for details refer to instruction manual).							