Test Report issued under the responsibility of:

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number .....:	E220248-A6035-CB-1
Date of issue.....:	2024-11-21 ; Amendment 2 : 2025-10-16
Total number of pages .....:	9
Name of Testing Laboratory preparing the Report .....:	UL Solutions RTP
Applicant's name.....:	**TDK-LAMBDA AMERICAS INC**
Address .....:	**3000 TECHNOLOGY DR, SUITE 100** **PLANO TX 75074** **UNITED STATES**
Test specification:	
Standard .....:	IEC 62368-1:2014
Test procedure .....:	CB Scheme
Non-standard test method.....:	N/A
TRF template used .....:	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.....:	IEC62368_1D
Test Report Form(s) Originator .....:	UL(US)
Master TRF.....:	Dated 2022-04-14

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

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 CB Testing Laboratory.
The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description .....:	Open type Switching Mode Power Supply
Trade Mark(s) .....:	TDK
Manufacturer .....:	TDK-LAMBDA AMERICAS INC 3000 Technology Dr, Suite 100 Plano TX 75074 UNITED STATES
Model/Type reference .....:	PF(x)1500(XX)-YZ-UVW-R, PF(x)1800(XX)-YZ-UVW-R Where "(x)" denotes any alphanumeric character not impacting safety Where "(XX)" denotes feature set (Full or Simple) Where "YZ" denotes Output Voltage Where "UVW' denotes an optional code for non safety related features Where "R" denotes ROHS compliance
Ratings .....:	Model PF(x)1500(XX)-YZ-UVW-R: Input: 100V – 277 VAC, 14A, 50/60Hz Output: 24-60VDC, 62.5A max., Max 1500 Watt. Model PF(x)1800(XX)-YZ-UVW-R: Input: 100/277 VAC, 16A, 50/60Hz Output: 24-60VDC, 64.3A max., Max 1800 Watt.

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	CB Testing Laboratory:		
Testing location/ address .....:		UL Solutions RTP 12 Laboratory Drive, Durham 27713, NC, USA	
Tested by (name, function, signature).....:		Edward Martin / Project Handler	
Approved by (name, function, signature).....:		Michael Lockhart / Reviewer	
☐	Testing procedure: CTF Stage 1:		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature).....:			

☒	Testing procedure: CTF Stage 2:		
Testing location/ address..... :		TDK-LAMBDA AMERICAS INC 3000 Technology Dr, Suite 100 Plano TX 75074 UNITED STATES	
Tested by (name, function, signature).....:		Ketan Patel / Tester	See original CBTR for signatures
Witnessed by (name, function, signature) ...:		Edward Martin / Project Handler	See original CBTR for signatures
Approved by (name, function, signature).....:		Gregory Ray / Reviewer	See original CBTR for signatures
☐	Testing procedure: CTF Stage 3:		
☐	Testing procedure: CTF Stage 4:		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) ...:			
Approved by (name, function, signature).....:			
Supervised by (name, function, signature)..:			

List of Attachments (including a total number of pages in each attachment):

National Differences (0 pages)
Enclosures (0 pages)

Summary of testing:

Tests performed (name of test and test clause): **None**	**Testing Location: None**

Summary of compliance with National Differences:

List of countries addressed: Australia - AU / New Zealand - NZ, EU Group Differences, Japan - JP, United States of America - US / Canada - CA

and

EU Special National Conditions: United Kingdom, Denmark, Finland, Norway and Sweden. Special National Conditions are not applicable to the product and were not addressed.

☒ **The product fulfils the requirements of:** AS/NZS 62368.1:2018,
EN 62368-1:2014+A11:2017,
J62368-1 (2020),
CSA/UL 62368-1:2014

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty (“simple acceptance” decision rule, previously known as “accuracy method”).

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

TEST ITEM PARTICULARS:	
Classification of use by	Instructed person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	for building-in
Considered current rating of protective device as part of building or equipment installation	20 (The power modules are not internally fused. An external input line fast-acting fuse with a maximum value of 20 A is required.) A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Class II
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	Base plate not exceeding 100C
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	Up to 3000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	<1Kg

POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
TESTING:	
Date of receipt of test item	N/A
Date (s) of performance of tests	N/A

GENERAL REMARKS:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	☒ **Yes** ☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	TDK-LAMBDA AMERICAS INC 3000 Technology Dr, Suite 100 Plano TX 75074 UNITED STATES TDK-LAMBDA MALAYSIA SDN BHD PLO33 KAWASAN PERINDUSTRIAN SENAI 81400 SENAI Johor MALAYSIA

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2025-10-16 to include the following changes/additions:
Amendment 2 (Administrative) to CB Test report E220248-A6035-CB-1: In the previous amendment, the report incorrectly listed a single output voltage due to an engineering oversight. The rated output voltage has now been updated to correctly reflect: 24–60 VDC. No testing was conducted as part of this Amendment. This Amendment is not valid without the original CB test report.

Product Description

The product tested is an open frame Build-in type Switching Class II Power Supply for end product use (host equipment is not specified). The PFH product family consists of high density AC-DC power converter modules intended to be used as a component in an end-user's power system.

The PFH1500, and PFH1800 product is available in one mechanical configuration using the same transformer core set, the same input PFC (Power Factor Correction) inductor core set, and the same output filter inductor core set with the same geometry except for the air gap and number of turns used in the output inductor. Aluminum baseplate is used for mounting the power components and is completely potted.

Model Differences

All models within this report are identical, except for model designation, output rating, and secondary winding of main Transformer. PF(x)1500(XX)-YZ-UVW-R is identical to PF(x)1800(XX)-YZ-UVW-R except for output power rating of 1500W and 1800W respectively.

Example models:

PFH1500F-48-xxx-R
PFH1500F-60-xxx-R
PFH1500F-28-xxx-R

"x" denotes an optional code for non safety related features.

Additional application considerations – (Considerations used to test a component or sub-assembly) -

Amendment 2 (Administrative) to CB Test report E220248-A6035-CB-1: In the previous amendment, the report incorrectly listed a single output voltage due to an engineering oversight. The rated output voltage has now been updated to correctly reflect: 24–60 VDC. No testing was conducted as part of this Amendment. This Amendment is not valid without the original CB test report.

Amendment 1 (Technical) to E220248-A6035-CB-1: Limited testing deemed necessary to add model PF(x)1800(XX)-YZ-UVW-R. New model is identical to previous except for increased output rating. Additionally administrative change to model nomenclature for model PFH1500X-YZ-UVW-R to change to PF(x)1500(XX)-YZ-UVW-R, with the added placeholders being for marketing purposes only.

Product must be needed the following external components of the circuit functions:
- Input Fuse (Client recommendation provided as part of spec sheet)
- Input Filter

All original sample and test dates are noted in the testing portion of this report.

The nameplate included in the report is representative of all models covered under this report.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : baseplate not exceeding 85C at 1800W output and 100C at 1500W output
- The product is intended for use on the following power systems : For building in
- Considered current rating of protective device as part of the building installation (A) : 20 (The power modules are not internally fused. An external input line fast-acting fuse with a maximum value of 20 A is required.)
- Mains supply tolerance (%) or absolute mains supply values : +10%/-10%
- The equipment disconnect device is considered to be : N/A. For building in.
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product was investigated to the following additional standards : UL/CSA 62368-1 2nd Edition, , EN 62368-1:2014 + A11:2017

Engineering Conditions of Acceptability
When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary-Secondary: 343.2 Vrms/ 651 Vpk
- The following output circuits are at ES1 energy levels : Output Connectors under normal
- The following output circuits are at ES2 energy levels : Output Connectors under single fault
- The following output circuits are at PS3 energy levels : Output
- The maximum investigated branch circuit rating is : 20 (The power modules are not internally fused. An external input line fast-acting fuse with a maximum value of 20 A is required.)
- The investigated Pollution Degree is : 2
- An investigation of the protective bonding terminals has : not been conducted
- The following end-product enclosures are required : 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) : Bias Transformer
- The power supply was evaluated to be used at altitudes up to : "3,000 m"
- The end-use product shall ensure that the power supply is used within its ratings.
- Temperature, Leakage Current, Capacitor Discharge, and Dielectric Voltage Withstand should be considered as part of the end product evaluation.
- End product application shall consider the need for different orientations of installation during testing.
- The acceptability of risk in conjunction to the routing of wires away from moving parts and sharp edges as part of the power supply shall be evaluated in the end application.

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to CTF stage 1 or CTF stage 2 procedure has been used.

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date