SUPERIOR PRODUCT CONSULTING, INC.

# Safety Test Report for LVD Declaration

專業 品質 效率 服務

**鼎安科技股份有限公司**
**Superior Product Consulting, Inc.**

Superior Product Consulting, Inc. (SPC)
Established in 1988, SPC has emerged as a leading global provider of product safety testing and certification services.

www.spci.com.tw

# DECLARATION OF CONFORMITY

## According to the Low Voltage Directive 2014/35/EU

| | |
|---|---|
| Type of Product ..... : | Non isolated DC/DC Converter |
| Model Designation..... : | RBT10W24S1V8, RBT10W24S3V3, RBT10W24S05, RBT10W24S6V5, RBT10W24S12, RBT10W24S15 |
| Manufacturer's Name ..... : | XP POWER LLC |
| Manufacturer's Address.... : | 340 COMMERCE, SUITE 100<br>IRVINE, CA 92602. |

Is herewith confirmed to comply with the requirements set out in the Council Directive 2014/35/EU for electrical equipment used within certain voltage limits. For the evaluation of the compliance with these Directive, the following standard was applied:

IEC 62368-1:2014 (Second Edition) and/or

EN 62368-1:2014+A11:2017

*Person responsible for making this declaration*

Name, Surname.....:

Position/Title .....:

CE

_____ (Place) _____ (Date) _____ (Company stamp and signature)

# TEST REPORT

**IEC/EN 62368-1**

**Audio/video, information and communication technology equipment**
**Part 1: Safety requirements**

| | |
|---|---|
| Report Reference No. : | T01-2409077 |
| Compiled by : | Sophia Pan<br>Engineer |
| Reviewed by : | Allen Huang<br>Assistant General Manager |
| Date of issue : | 2024-10-15 |
| Testing laboratory name : | Superior Product Consulting, Inc (SPC) |
| Testing location : | 3rd Fl, 10 Alley 6, Lane 235 Pao Chiao Rd Hsin-Tien district, New Taipei City Chinese Taipei |
| **Applicant's name :** | XP POWER LLC |
| Address : | 340 COMMERCE, SUITE 100 IRVINE, CA 92602. |
| **Test specification:** | |
| Standard : | IEC 62368-1:2014 (Second Edition) and/or EN 62368-1:2014 and/or EN 62368-1:2014/AC:2015 |
| Test procedure : | QE-19, UL/IEC/EN 62368-1 |
| Non-standard test method : | N/A |
| Test Item description : | Non isolated DC/DC Converter |
| Trade Mark : | XP |
| Manufacturer : | Same as Applicant |
| Model/Type reference : | RBT10W24S1V8<br>RBT10W24S3V3<br>RBT10W24S05<br>RBT10W24S6V5<br>RBT10W24S12<br>RBT10W24S15 |
| Ratings : | See Miscellaneous ID 7-01 for input and output rating details |

**Summary of testing:**

See below for summary and applicable clauses.

All tests were conducted under maximum normal load conditions as below, if not specified elsewhere.

Same as equipment output rating

Unless special specified, all tests were performed on models RBT10W24S3V3 and RBT10W24S15 to represent other similar models.

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| - Temperature Tests (5.4.1.4, 6.3.2, 9 and Annex B.2.6)<br>- Power source circuit classifications (6.2.2)<br>- Input Current (B.2.5)<br>- Simulated Abnormal Operating Conditions (B.3)<br>- Simulated Single Fault Conditions (B.4)<br>- Limited Power Sources (Annex Q) | Unless otherwise indicated, all tests were conducted at Superior Product Consulting, Inc (SPC) / 3rd Fl, 10 Alley 6, Lane 235 Pao Chiao Rd Hsin-Tien district, New Taipei City, Chinese Taipei. |

**Copy of marking plate:**


These Marking Plate Labels are samples of the Marking Plate Label design, the model designation and input/output ratings will change in accordance with specific models. See Enclosure ID 7-01 for details.

| TEST ITEM PARTICULARS: | |
|---|---|
| Classification of use by ..... : | ☐ Ordinary person<br>☐ Instructed person<br>☐ Skilled person<br>☐ Children likely to be present |
| Supply Connection..... : | ☐ AC Mains ☐ DC Mains<br>☒ External Circuit - not Mains connected<br>☒ ES1 ☐ ES2 ☐ ES3 |
| Supply % Tolerance ..... : | ☐ +10%/-10%<br>☐ +20%/-15%<br>☐ +____%/ -_____%<br>☒ None |
| Supply Connection – Type ..... : | ☐ pluggable equipment type A -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ direct plug-in<br>☐ mating connector<br>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ permanent connection<br>☐ mating connector<br>☒ other: not Mains connected |
| Considered current rating of protective device as part of building or equipment installation .....: | N/A<br>Installation location: ☐ building; ☐ equipment |
| Equipment mobility .....: | ☐ movable ☐ hand-held ☐ transportable<br>☐ stationary ☒ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted |
| Over voltage category (OVC) .....: | ☐ OVC I ☐ OVC II ☐ OVC III<br>☐ OVC IV ☒ other: not Mains connected |
| Class of equipment .....: | ☐ Class I ☐ Class II ☐ Class III |
| Access location .....: | ☐ restricted access location ☒ N/A |
| Pollution degree (PD) .....: | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| Manufacturer's specified maxium operating ambient : | 60 °C for output 100% load, 85 °C for output 50% load |
| IP protection class .....: | ☒ IPX0 ☐ IP___ |
| Power Systems .....: | ☐ TN ☐ TT ☐ IT - ____ V L-L |
| Altitude during operation (m) .....: | ☐ 2000 m or less ☒ 5000 m |
| Altitude of test laboratory (m) .....: | ☒ 2000 m or less ☐ __ m |
| Mass of equipment (kg) .....: | ☒ 1.9 g |
| | |

| | |
|---|---|
| **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..... : | 2020-08-24 |
| Date (s) of performance of tests..... : | 2020-08-24 to 2020-09-18 |
| | |

**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.**

**When differences exist; they shall be identified in the General product information section.**

| | |
|---|---|
| **Name and address of factory (ies) ..... :** | No 133 Lide Rd Daliao District Kaohsiung City, 831 TAIWAN |

**GENERAL PRODUCT INFORMATION:**

**Product Description –**

The Non isolated DC to DC Converter is intended for use within Audio/Video, Information and Communication Technology Equipment.

It consists of electrical components mounted on PWB, filled by epoxy resin and housed in plastic enclosure.

**Technical Considerations and Engineering Conditions of Acceptability**
The outputs of the Non isolated DC to DC Converter were evaluated for ES1 and PS1 (LPS).

The ES classification of circuits that are accessible to ordinary persons shall be reconsidered in the end-product.

The terminals of the DC to DC Converter are only suitable for factory wiring only.

The DC to DC Converter was evaluated for Pollution Degree 2.

The DC to DC Converter was evaluated for Functional Insulation and is intended to be installed in an isolated (non-mains) ES1 circuit which is separated from a.c. mains circuit by Double or Reinforce Insulation.

The need for suitable electrical enclosure (for ES safeguard), fire enclosure (for PS safeguard), and safeguard for thermal burn injury (for TS safeguard) is to be evaluated and provided (if necessary) in the end-product.

The maximum investigated protective device capacity is: 75 A for fault condition tests.

The DC to DC Converters were tested for an input voltage rating as ID 7-01 without tolerance.

Class of equipment will be evaluated in end product.

**Model Differences –**

All models are identical except for input, output rating and choke.

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

| ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE: | |
|---|---|
| (Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)<br>(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3. | |
| **Electrically-caused injury (Clause 5):**<br>(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)<br>Example: +5 V dc input ES1 | |
| **Source of electrical energy** | **Corresponding classification (ES)** |
| Input Circuits | ES1 |
| Output Circuits | ES1 |
| **Electrically-caused fire (Clause 6):**<br>(Note: List sub-assembly or circuit designation and corresponding energy source classification)<br>Example: Battery pack (maximum 85 watts): PS2 | |
| **Source of power or PIS** | **Corresponding classification (PS)** |
| All Internal Circuit | PS3 Arcing PIS / Resistive PIS |
| Output circuits | PS1 (LPS) |
| **Injury caused by hazardous substances (Clause 7)**<br>(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)<br>Example: Liquid in filled component Glycol | |
| **Source of hazardous substances** | **Corresponding chemical** |
| N/A | N/A |
| **Mechanically-caused injury (Clause 8)**<br>(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)<br>Example: Wall mount unit MS2 | |
| **Source of kinetic/mechanical energy** | **Corresponding classification (MS)** |
| N/A | N/A |
| **Thermal burn injury (Clause 9)**<br>(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)<br>Example: Hand-held scanner – thermoplastic enclosure TS1 | |
| **Source of thermal energy** | **Corresponding classification (TS)** |
| N/A | N/A |
| **Radiation (Clause 10)**<br>(Note: List the types of radiation present in the product and the corresponding energy source classification.)<br>Example: DVD – Class 1 Laser Product RS1 | |
| **Type of radiation** | **Corresponding classification (RS)** |
| N/A | N/A |

| ENERGY SOURCE DIAGRAM |
|---|
| Indicate which energy sources are included in the energy source diagram. Insert diagram below |
| **Refer ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE** |
| ☒ **ES** ☒ **PS** ☐ **MS** ☐ **TS** ☐ **RS** |

| **OVERVIEW OF EMPLOYED SAFEGUARDS** | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5.1 | Electrically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (ES3: Primary Filter circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| -- | -- | -- | -- | -- |
| 6.1 | Electrically-caused fire | | | |
| Material part (e.g. mouse enclosure) | Energy Source (PS2: 100 Watt circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Combustible Material and Components | PS3 | See sub-clause 6.3 for details. | Control of fire spread method is chosen. See Table 4.1.2 for details. | N/A |
| 7.1 | Injury caused by hazardous substances | | | |
| Body Part (e.g., skilled) | Energy Source (hazardous material) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| N/A | N/A | N/A | N/A | N/A |
| 8.1 | Mechanically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (MS3:High Pressure Lamp) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| N/A | N/A | N/A | N/A | N/A |
| 9.1 | Thermal Burn | | | |
| Body Part (e.g., Ordinary) | Energy Source (TS2) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| N/A | N/A | N/A | N/A | N/A |
| 10.1 | Radiation | | | |
| Body Part (e.g., Ordinary) | Energy Source (Output from audio port) | Safeguards | | |
| | | Basic | Supplementar | Reinforced |

| | | | y | |
|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A |

Supplementary Information:
(1) See attached energy source diagram for additional details.
(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault