

TECHNICAL REGULATION ON ECODESIGN REQUIREMENTS FOR NO-LOAD  
CONDITION ELECTRIC POWER CONSUMPTION AND AVERAGE ACTIVE  
EFFICIENCY OF EXTERNAL POWER SUPPLIES, NO (XXX) FOR THE YEAR 2012,  
ISSUED IN ACCORDANCE TO ARTICLE (XXX) AND ARTICLE (XXX) OF STANDARDS  
AND METROLOGY LAW NO 22/2000

Article 1:

This Technical Regulation shall be referred to as the "Technical Regulation on ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies, No...".

Article 2:

This Technical Regulation represents an implementing Technical Regulation to Technical Regulation on ecodesign requirements for energy related products, No. xx for 2012 (hereinafter: Framework Technical Regulation), both of which shall be used to establish the ecodesign requirements for external power supplies.

Section 1  
Definitions

Article 3:

In addition to the definitions laid down in Article 2 of the Framework Technical Regulation, the following definitions shall apply for the purpose of this implementing Technical Regulation:

3-1 External power supply: device which meets all of the following criteria:

- (a) it is designed to convert alternating current (AC) power input from the mains power source input into lower voltage direct current (DC) or AC output;
- (b) it is able to convert to only one DC or AC output voltage at a time;
- (c) it is intended to be used with a separate device that constitutes the primary load;
- (d) it is contained in a physical enclosure separate from the device that constitutes the primary load;
- (e) it is connected to the device that constitutes the primary load via a removable or hard-wired male/-female electrical connection, cable, cord or other wiring;
- (f) it has nameplate output power not exceeding 250 Watts;
- (g) it is intended for use with electrical and electronic household and office equipment as referred to in Article 3-1 of Technical Regulation on ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment, No. ....

3-2 Low voltage external power supply: external power supply with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 milliamperes;

3-3 Halogen lighting converter: external power supply used with extra low voltage tungsten halogen lamps;

3-4 Uninterruptible power supply: device providing automatically backup power when the electrical power from the mains power source drops to an unacceptable voltage level;

3-5 Battery charger: device which connects directly to a removable battery at its output interface;

3-6 Voltage converter: means a device converting 230 V mains power source output to 110 V power output with characteristics similar to mains power source output characteristics;

3-7 Nameplate output power ( $P_o$ ): the output power as specified by the manufacturer;

3-8 No-load condition: the condition in which the input of an external power supply is connected to the mains power source, but the output is not connected to any primary load;

3-9 Active mode: a condition in which the input of an external power supply is connected to the mains power source and the output is connected to a load;

3-10 Active mode efficiency: the ratio of the power produced by an external power supply in active mode to the input power required to produce it;

3-11 Average active efficiency: the average of the active mode efficiencies at 25 %, 50 %, 75 % and 100 % of the nameplate output power.

## Section 2 Subject matter and scope

### Article 4:

4-1 This implementing Technical regulation establishes ecodesign requirements related to electric power consumption in no-load condition and average active efficiency of external power supplies.

4-2 This implementing Technical regulation shall not apply to:

(a) voltage converters;

(b) uninterruptible power supplies;

(c) battery chargers;

(d) halogen lighting converters;

(e) external power supplies for medical devices;

(f) external power supplies placed on the market no later than 30 June 2015 as a service part or spare part for an identical external power supply which was placed on the market before 1 January 2014, under the condition that the service part or spare part, or its packaging, clearly indicates the primary load product(s) for which the spare part or service part is intended to be used with.

## Section 3 Requirements, conformity assessment and market surveillance

### Article 5: Ecodesign requirements

The ecodesign requirements related to no-load electric power consumption and average active efficiency of external power supplies placed on the market are set out in Annex A.

### Article 6: Conformity assessment

The procedure for assessing conformity referred to in Article 10 of the Framework Technical Regulation shall be the internal design control system set out in Annex B to that Technical Regulation or the management system for assessing conformity set out in Annex C to that Technical Regulation.

### Article 7: Verification procedure for market surveillance purposes

Surveillance checks shall be carried out in accordance with the verification procedure set out in Annex B to this implementing Technical Regulation.

### Article 8: Indicative benchmarks

The indicative benchmarks for the best-performing products and technology currently available on the market are identified in Annex C to this implementing Technical Regulation.

Section 4  
Related documents

Article 9:

9-1 This implementing Technical Regulation represents transposition of EU Commission Regulation 278/2009 on ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies.

9-2 Technical Regulation on the ecodesign requirements for energy related products, No. ....

9-3 Standards and Metrology Law, No. 22/2000.

9-4 Instructions on market surveillance, No. ... .

Section 5  
Entry into force

Article 10:

This Technical Regulation shall enter into force on 1/1/2014.

## ANNEX A ECODESIGN REQUIREMENTS

### 1. No-load power consumption and average active efficiency

The no-load condition power consumption shall not exceed the following limits:

|                           | AC-AC external power supplies, except low voltage external power supplies | AC-DC external power supplies except low voltage external power supplies | Low voltage external power supplies |
|---------------------------|---|--|-------------------------------------|
| $P_0 \leq 51,0 \text{ W}$ | 0,50 W  | 0,30 W   | 0,30 W                              |
| $P_0 > 51,0 \text{ W}$    | 0,50 W  | 0,50 W   | n/a                                 |

The average active efficiency shall be not less than the following limits:

|   | AC-AC and AC-DC external power supplies, except low voltage external power supplies | Low voltage external power supplies |
|---|---|-------------------------------------|
| $P_0 \leq 1,0 \text{ W}$                  | $0,480 \cdot P_0 + 0,140$   | $0,497 \cdot P_0 + 0,067$           |
| $1,0 \text{ W} < P_0 \leq 51,0 \text{ W}$ | $0,063 \cdot \ln(P_0) + 0,622$  | $0,075 \cdot \ln(P_0) + 0,561$      |
| $51,0 \text{ W} < P_0$                    | 0,870   | 0,860                               |

### 2. Measurements

The no-load condition power consumption and the average active efficiency referred to in point 1 shall be established by a reliable, accurate and reproducible measurement procedure, which takes into account the generally recognised state of the art.

Measurements of power of 0,50 W or greater shall be made with an uncertainty of less than or equal to 2 % at the 95 % confidence level. Measurements of power of less than 0,50 W shall be made with an uncertainty of less than or equal to 0,01 W at the 95 % confidence level.

### 3. Information to be provided by manufacturers

For the purposes of conformity assessment pursuant to Article 6, the technical documentation shall contain the following elements:

| Reported quantity                          | Description  |
|--|--|
| Root mean square (Rms) output current (mA) | Measured at load conditions 1-4                                |
| Rms output voltage (V)                     |  |
| Active output power (W)                    |  |
| Rms input voltage (V)                      | Measured at load conditions 1-5                                |
| Rms input power (W)                        |  |
| Total harmonic distortion (THD)            |  |
| True power factor                          |  |
| Power consumed (W)                         | Calculated at load condition 1-4, measured at load condition 5 |
| Efficiency                                 | Calculated at load conditions 1-4                              |
| Average efficiency                         | Arithmetic average of efficiency at load conditions 1-4        |

The relevant load conditions are as follows:

| Percentage of nameplate output current |                         |
|--|-------------------------|
| Load condition 1                       | 100 % $\pm$ 2 %         |
| Load condition 2                       | 75 % $\pm$ 2 %          |
| Load condition 3                       | 50 % $\pm$ 2 %          |
| Load condition 4                       | 25 % $\pm$ 2 %          |
| Load condition 5                       | 0 % (no-load condition) |

## ANNEX B VERIFICATION PROCEDURE

When performing the market surveillance checks the Organisation shall apply the following verification procedure for the requirements set out in Annex A.

1. The Organisation shall test one single unit.
2. The model shall be considered to comply with the provisions set out in Annex A, if:
  - (a) the result for no-load condition does not exceed the applicable limit value set out in Annex A by more than 0,10 W; and
  - (b) the arithmetic average of efficiency at load conditions 1-4 as defined in Annex A does not fall below the applicable limit value for average active efficiency by more than 5 %.
3. If the results referred to in points 2(a) and (b) are not achieved, three additional units of the same model shall be tested.
4. After three additional units of the same model have been tested, the model shall be considered to comply with the requirements if:
  - (a) the average of the results for no-load condition does not exceed the applicable limit value set out in Annex A by more than 0,10 W; and
  - (b) the average of the arithmetic averages of efficiency at load conditions 1-4 as defined in Annex A does not fall below the applicable limit value for average active efficiency by more than 5 %.
5. If the results referred to in points 4(a) and (b) are not achieved, the model shall be considered not to comply with the requirements.

ANNEX C  
INDICATIVE BENCHMARKS REFERRED TO IN ARTICLE 8

(a) No-load condition

The lowest available no-load condition power consumption of external power supplies can be approximated by:

- 0,1 W or less, for  $P_0 \leq 90$  W,
- 0,2 W or less, for  $90$  W <  $P_0 \leq 150$  W,
- 0,4 W or less, for  $150$  W <  $P_0 \leq 180$  W,
- 0,5 W or less, for  $P_0 > 180$  W.

(b) Average active efficiency

The best available active average efficiency of external power supplies according to most recent available data (status January 2008) can be approximated by:

- $0,090 \cdot \ln(P_0) + 0,680$ , for  $1,0$  W  $\leq P_0 \leq 10,0$  W,
- 0,890, for  $P_0 > 10,0$  W.