

**ELECTRONIC BALLASTS FOR FLUORESCENTS
LAMPS – NBR 14417 e NBR 14418**

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1 – PURPOSE

This document presents the complementary criteria for the “Product Certification Rule” – RC-002 certification and maintenance of the license to use of the SBAC Conformity Mark.

Note: SBAC – Sistema Brasileiro de Avaliação da Conformidade, on wich means Conformity Evaluation Brazilian System.

2 - APPLICATION FIELD

This complement applies to the products that fit into teh scope of the below-referenced standard.

3 – APPLICABLE STANDARDS, REGULATIONS AND REQUIREMENTS

NBR 14417:1999 A.C. Supplied electronics ballasts for tubular fluorescent lamps. General and safety requirements.

NBR 14418:1999 - A.C. Supplied electronics ballasts for tubular fluorescent lamps. Performance requirements.

NBR ISO 9001:2000 Quality Management System – Requirements.

Inmetro Rule (Portaria) No. 27 dated February 18th, 2000, which validates the standardized supply voltages;

Inmetro Rule (Portaria) **nº 267 dated September 21th, 2009m** which establishes minimum requirements of safety and performance for the A.C. supplied electronic ballasts in alternated current for tubular fluorescent lamps

Inmetro Rule (Portaria) No. 73 dated March 29th, 2006, which approves the Regulation for use of Inmetro’s Marks, Accreditation Symbols and Conformity Identification Seals.

Inmetro Rule (Portaria) No. 231 dated September 28th, 2006, which regulates the transition of the use of the mark of conformity of the Inmetro for the use of the stamp of identification of conformity.

4 - DEFINITIONS

The definitions contained in the above-menioned standards shall apply, further to the definitions in 4.1 thru 4.3.

4.1 – Primary Package

Package that contains the product for purposes of market to the end consumers.

4.2 – Homogeneous Series / FAMILY

Group of electronic ballasts supplied by alternated current for fluorescent tubular lamps manufactured in the same plant and having the same basic project: that uses the same printed circuit board, partially or totally mounted, same type of enclosure and same supply voltage.

4.3 – Manufacturer

Responsible for manufacturing and approving the product.

5 – CONFORMITY EVALUATION

To evaluate the conformity, the provisions in RC-002 must be followed, complemented by the items below.

5.1 – DOCUMENTATION REVIEW

The following documents must be submitted to review:

REATORES ELETRÔNICOS PARA LÂMPADAS FLUORESCENTES – NBR 14417 e NBR 14418

- Product complementary characteristics (CCP) table, to be provided by TÜV Rheinland do Brasil and filled out by the applicant;
- Printed circuit board layout (PCB);
- Enclosure drawing (casing);
- Electric diagram (schematic);
- List of materials (B.OM.) and respective main suppliers;
- Product marking, for the intended market (printers, labels, etc);
- Product packaging.

5.2 – INITIAL FACTORY EVALUATION

The control and quality requirements included on the Factory Inspection Report – CIG 23 are checked in the factory evaluation, using the following content of the ISO 9001:2000 standard as reference:

- Records control – to meet Standard item 4.2.4;
- Production control – to meet Standard items 7.5.1 and 7.5.2;
- Purchased product check – to meet Standard item 7.4.3;
- Product identification and traceability - to meet Standard item 7.5.3;
- Product preservation – to meet Standard item 7.5.5;
- Monitoring and measuring devices control – to meet Standard item 7.6;
- Complaint handling – to meet Standard item 8.2.1;
- Product measuring and monitoring – to meet Standard item 8.2.4;
- Non-conforming product control – to meet Standard item 8.3;
- Corrective action – to meet Standard item 8.5.2.

5.3 – INITIAL TESTS

The initial tests are all those specified in the product standards, to be applied on twenty (16) samples of the highest total wattage circuit (ballast + lamp) model, if bivolt (127V and 220V), or ten (08) samples of the highest total wattage circuit (ballast + lamp) model, if monovolt (127V or 220V) of every family to be certified. Tests shall be performed to check compliance with the Inmetro Rule (Portaria) 27/2000 requirements too.

Note 1 - Non-dimmable ballast could not declare a luminous flow factor minor that a 90% of the reference ballast.

Note 2 - Electronic ballasts to 28W lamps or higher, must accord with requirements of annex E of the NBR 14418.

5.4 – TEST LABORATORY USAGE

The tests must be performed at Laboratories authorized by an Accreditation Body signatory to a multilateral mutual recognition agreement such as ILAC, EA, or IAAC.

Note 1 - The scope of the laboratory accreditation must include the test method applied.

Note 2 - The tests reports issued by the laboratory must have a clearly and unequivocal identification of the authorized laboratory condition.

5.5 – SURVEILLANCE AUDITS

The surveillance audits must be performed at least every 06 months according to the description on this complement item 5.2.

At each surveillance audit must be verified the carry out, by the manufacturer, the routine tests (item 5.7).

5.6 – SURVEILLANCE TESTS

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The surveillance tests must be performed after the grant of authorization for use of the conformity identification seal.

- Safety items to be tested:

| NBR14417 Items | Test | 1st semester | 2nd semester | 3rd semester | 4th semester |
|-------------------|---|-----------------|-----------------|-----------------|-----------------|
| 7 | Identification | | | | X |
| 8.1 | Connections | X | | | |
| 8.2 | Provisions for earth | X | | | |
| 8.3 | Creepage distances and clearance | X | | | X |
| 8.4 | Protection against accidental contact with live parts | X | | | |
| 8.5 | Protection against electric shock | | | X | |
| 8.6 | Insulation resistance after moisture treatment | | X | | X |
| 8.7 | Dielectric strength | X | | | |
| 8.8 | Abnormal conditions | | X | | |
| 8.9 | Screws, current-carrying parts and connections | | | | X |
| 8.10 | Heat and flame resistance | | | X | |
| 8.11 | Resistance to corrosion | | | X | |

- Performance items to be tested:

| NBR14418 Items | Test | 1st semester | 2nd semester | 3rd semester | 4th semester |
|-------------------|---|-----------------|-----------------|-----------------|-----------------|
| 5 | Identification | | | | X |
| 7 | Starting Conditions | | | X | |
| 8.1 | Luminous flow factor | X | X | X | X |
| 8.2 | Total wattage of the circuit | | X | | |
| 8.3 | Luminous flow control (dimming) | | | | X |
| 8.4 | Lamp current | X | | | |
| 9 | Ballast factor - λ (power factor) | X | X | | X |
| 10 | Ratted current | | | X | |
| 11 | Max current filament | | | X | |
| 12 | Current wave form | X | X | X | X |
| 13 | Magnetic protection | | X | | |
| 15 | Transitory Overvoltage | | | | X |
| 16 | Functional tests for abnormal conditions | | | X | |
| 17 | Endurance | | | | X |

- Test sampling:

| Supply voltage | Ballasts quantity | | | |
|-------------------|-------------------|---------|---------|---------|
| | 1st sem | 2nd sem | 3rd sem | 4th sem |
| Bivolt | 6 | 6 | 12 | 12 |
| Monovolt | 4 | 4 | 4 | 4 |

- sampling for against-test and witness:
Preferably in the same amounts of the tests, or to be consensus with a customer.
- Sample acquisition:
Preferably from the market.

5.7 – ROUTINE TESTS

The manufacturer is responsible for conducting routine tests that must be performed on the complete product. Records on such tests must be kept for TÜV checks during surveillance audits. The routine tests in ballasts with metallic enclosure are:

- Dielectric strength → 1500V (minimum) x100mA (maximum) x 1 to 3s, of 100% of the production
- Lighting-on → under rated voltage and frequency, of 100% of the production;

The routine tests in ballasts with plastic enclosure are:

- Lighting-on → under rated voltage and frequency, of 100% of the production.

5.8 – PERIODIC TESTS OF PRODUCT CHECKING

The manufacture/applicant must carry out periodic tests, of models in production, with sampling defined by the manufacturer, from:

- Nominal current;
- Total wattage of the circuit (lamp + ballast);
- Ballast factor (power factor);
- Harmonic distortion;
- Crest factor.

The manufacturer must keep result records for TÜV review.

6 - CERTIFICATION IDENTIFICATION

The product, and the package when applicable, must receive individual seal of conformity Inmetro Rule (Portaria) nº 231/06, annex A.13, exemplified in the figures 1 or 2 below.

The seal may not be used on visiting cards, and TÜV must formally approve the usage of the mark in advertising material, stationery or any other usage.



Figure 1



Figure 2

UC LOGO: to be used only for customers that still use it on their products and packages.

7 - CHANGES INTRODUCED

Amendment of the code of the document

Analyze general of document