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Australian Standard 2643—1983

FLUORESCENT LAMP BALLASTS—PERFORMANCE REQUIREMENTS

2643—1991 **Fluorescent lamp ballasts of the reactive type—Performance requirements**
A4 21pp G

Specifies performance requirements for ballasts of the reactive type designed for use with tubular fluorescent lamps specified in AS 1201. Applies to complete ballasts and their component parts such as reactors, transformers and capacitors (having a capacitance of not more than 0.1 μF). Based on IEC 921.

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The following interests are represented on Committee LG/3:

Australian Electrical and Electronic Manufacturers Association
Association of Consulting Engineers Australia
Confederation of Australian Industry
Department of Public Works, N.S.W.
Department of Transport and Construction
Electrical Apparatus Approvals Authorities
Electronic Importers Association
Electricity Supply Association of Australia
Illuminating Engineering Societies of Australia
Public Works Department, Vic.
Railways of Australia Committee
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AUSTRALIAN STANDARD

FLUORESCENT LAMP BALLASTS—PERFORMANCE REQUIREMENTS

AS 2643—1983

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PREFACE

This standard was prepared by the Association's Committee on Auxiliaries for Discharge Lamps, to supersede AS C322—1970, Fluorescent Lamp Ballasts.

It specifies requirements which are essential to proper lamp operation and satisfactory operation of ballasts associated with tubular fluorescent lamps having characteristics as specified in AS 1201. Complete ballasts and their component parts such as reactors, transformers and capacitors (having a capacitance of not more than 0.1 μF), essential to the functioning of ballasts in fluorescent lamp circuits are within the scope of this standard.

Electrical safety requirements are not included herein, but are covered by AS 3168.

Other than in editorial presentation, this standard closely follows the fourth edition of IEC 82, Ballasts for Tubular Fluorescent Lamps; however, some of the requirements of that publication have been modified to take account of local conditions. These modifications include the addition of a ballast loss test and marking requirements, the retention of the input power measurement of AS C322 and the addition of an optional test for quiet operation of a ballast.

It should be noted that the fourth edition of IEC 82 did not distinguish between performance and safety requirements. This standard, however, includes only those requirements of IEC 82 which were considered to be 'performance' criteria.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
FLUORESCENT LAMP BALLASTS—PERFORMANCE REQUIREMENTS

1 SCOPE AND REFERENCED DOCUMENTS.

1.1 Scope. This standard specifies requirements for ballasts designed for use on a.c. supplies at 50 Hz associated with tubular fluorescent lamps operated with or without a starter switch and having rated wattages, dimensions and characteristics as specified in AS 1201. It applies to complete ballasts and to their component parts such as reactors, transformers and capacitors having a capacitance of not more than 0.1 μF, which are incorporated in the ballasts or supplied as separate elements essential to the functioning of ballasts in fluorescent lamp circuits.

It does not apply to the following:

(a) Ballasts designed for use with cold cathode fluorescent lamps, requirements for which are specified in AS 3143.

(b) Capacitors which are incorporated in starters.

(c) Ballasts of the resistance type.

This standard prescribes requirements for the characteristics of ballasts which are essential to proper lamp operation and also for the satisfactory operation of the ballasts themselves in fluorescent lamp circuits. Safety requirements for ballasts are specified by reference to AS 3168 and AS 3100 (see Clause 2).

NOTE: Comprehensive requirements for capacitors having a capacitance greater than 0.1 μF, for use in discharge lamp circuits, are provided in AS 2644.

1.2 Referenced Documents. The following standards are referred to in this standard:

AS 1201	Tubular Fluorescent Lamps for General Lighting Service Part 1—Test and Compliance Requirements Part 2—Lamp Data Sheets
AS 1259	Sound Level Meters
AS 2644	Capacitors for Use in Discharge Lamp Circuits
AS 3100	Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment
AS 3143	Approval and Test Specification for Transformers for Cold-cathode Electric Discharge Lamps and Lighting Systems
AS 3168	Approval and Test Specification for Fluorescent Lamp Ballasts
IEC 155	Starters for Fluorescent Lamps

2 SAFETY REQUIREMENTS.

This standard does not include the electrical safety requirements which must be observed to secure approval for connection or sale of fluorescent lamp ballasts. Fluorescent lamp ballasts shall, in addition to complying with this standard, comply with the appropriate requirements of AS 3168.

3 DEFINITIONS.

For the purpose of this standard, the following definitions, in addition to those listed in AS 1201 and AS 3168, apply.

NOTE: Requirements for reference ballasts and reference lamps which are defined in AS 3168, are provided in Appendices B and C herein.

3.1 High power factor ballast—a ballast having a circuit power factor of at least 0.85 (leading or lagging).

NOTE: The value 0.85 takes into account the effect on the power factor of the distortion of the current waveform.

3.2 High audio-frequency impedance ballast—a ballast of which the impedance in the frequency range 250 Hz to 2000 Hz exceeds the values specified in Clause 13.

3.3 Starting aid—any physical means which assists the lamp during starting in starterless circuits.

3.4 Starting capacitor—a capacitor used in series multiple-lamp circuits to aid starting.

3.5 Choke-test voltage—the sinusoidal voltage at rated frequency, which must be applied across the ballast to produce a current through the ballast, and which is equal to that current measured when the ballast is operated with a reference lamp, at rated mains voltage and frequency, and when the ballast is at a stable operating temperature.

3.6 Lamp power—the total power dissipated in the lamp (including any filament heating power).

3.7 Ballast loss—the power dissipated in the ballast when measured in accordance with Clause 16.

4 CAPACITORS.

4.1 Nominal Capacitance Exceeding 0.1 μF. Capacitors having a nominal capacitance exceeding 0.1 μF shall comply with the relevant requirements of AS 2644.

4.2 Nominal Capacitance of 0.1 μF or Less. Capacitors having a nominal capacitance not exceeding 0.1 μF shall comply with the relevant requirements of AS 3168.

4.3 Radio Interference Suppression Capacitors. Ballasts designed for the operation of lamps in starterless or instant-start circuits shall incorporate a suppressor capacitor, having a capacitance not less than 0.005 μF, connected across the lamp, or group of lamps in series multiple-lamp circuits.

5 MARKING.

In addition to the marking required by AS 3168, the ballast shall be legibly and durably marked with the following information:

(a) If necessary, the symbol $\overline{\overline{Z}}$ which indicates that the ballast is designed to comply with the conditions for audio-frequency impedance (see Clause 13).

(b) The following symbol for independent ballasts: