

AS 4435.1—1996

Australian Standard<sup>®</sup>

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**Insulators—Composite for overhead lines—Voltages greater than 1000 V a.c.**

**Part 1: Definitions, test methods and acceptance criteria for string insulator units**

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[ Based on and including the full text of IEC 1109:1992 and IEC 1109:1992/Amd.1:1995, Composite insulators for a.c. overhead lines with a nominal voltage greater than 1000 V — Definition test methods and acceptance criteria]

This Australian Standard was prepared by Committee EL/10, Overhead Lines. It was approved on behalf of the Council of Standards Australia on 26 August 1996 and published on 5 December 1996.

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The following interests are represented on Committee EL/10:

Australasian Railway Association  
Australian Chamber of Commerce and Industry  
Australian Electrical and Electronic Manufacturers Association  
Australian Porcelain Insulators Association  
Electricity Engineers Association of New Zealand  
Electricity Supply Association of Australia

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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/10 on Overhead Lines.

Apart from the exceptions described below, this Standard has been reproduced from IEC 1109 (1992), *Composite insulators for a.c. overhead lines with a nominal voltage greater than 1000 V—Definitions, test methods and acceptance criteria*, including Amendment No. 1:1995. The Amendment is found at the end of this Standard. The text affected by the Amendment is marked in the source document by double marginal bars.

This Standard is the result of a consensus among Australian and New Zealand representatives to produce it as an Australia Standard.

The objective of this Standard is to provide users and manufacturers of composite insulators with definitions of terms, test methods and acceptance criteria to facilitate the specification of insulators.

This Standard is one of a four-part series to cover composite insulators for overhead lines, which when complete will comprise the following:

- (a) This Standard (AS 4435.1).
- (b) A proposed Part 2 to cover standard strength classes and end fittings for string insulator units.
- (c) A proposed Part 3 to cover dimensional and electrical characteristics for string insulator units.
- (d) A proposed Part 4 to cover definitions, test methods and acceptance criteria for post insulator units.
- (e) A proposed Part 5 to cover standard strength classes and end fittings for post insulator units.

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Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix or annex to which they apply. A 'normative' appendix or annex is essential to the understanding and implementation of the Standard. An 'informative' appendix or annex gives additional information, recommendations and guidelines.

For the purpose of this Standard, the IEC text should be modified as follows:

- (A) The IEC text is amended, supplemented or replaced as set out in Appendix ZZ. The changes are indicated by a marginal bar against each clause, table or figure affected by a reference to Appendix ZZ.

NOTE: Three marginal bars indicate that the IEC text is affected by Appendix ZZ and IEC 1109:1992 Amd.1: 1995.

- (B) A full point (.) substitutes for a comma (,) when referring to a decimal point.
- (C) References to international Standards should be replaced by references to Australian or Australian/New Zealand Standards as follows:

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| <i>Reference to International Standard</i> |  | <i>Australian Standard</i> |  |
|--|--|----------------------------|--|
| IEC  |  | AS                         |  |
| 60   | High voltage test techniques   | 1931                       | High-voltage test techniques   |
| 60-1                                       | Part 1: General definitions and test requirements  | 1931.1                     | Part 1: General definitions and test requirements  |
| 120  | Dimensions of ball and socket couplings of string insulator units  | 2947                       | Insulators—Porcelain and glass for overhead power lines— Voltages greater than 1000 V a.c. |
|  |  | 2947.3                     | Part 3: Couplings  |
| 383  | Tests on insulators of ceramic material or glass for overhead lines with a nominal voltage greater than 1000 V | 2947                       | Insulators—Porcelain and glass for overhead power lines— Voltages greater than 1000 V a.c. |
|  |  | 2947.1                     | Part 1: Test methods   |
| 437  | Radio interference test on high-voltage insulators   | —                          |  |
| 507  | Artificial pollution tests on high-voltage insulators to be used on an a.c. system                             | —                          |  |
| 815  | Guide for the selection of insulators in respect of polluted conditions  | —                          |  |

The following International Electrotechnical Commission document is quoted in this Standard.

## IEC

- 707 Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source.

The following American Society for Testing and Materials document is quoted in this Standard.

## ASTM

- D 2863 Test Method for Measuring Minimum Oxygen Concentration to Support Candle-like Combustion of Plastics (Oxygen Index)

The following International Organization for Standardization document is quoted in this Standard

## ISO

- 3452 Non-destructive testing—Penetrant inspection—General principles

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