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Superseded by AS/NZS 2064.1 & 1992 (in part)

Superseded by AS/NZS 2064.2 : 1992 (in part)

AS 2064—1990

Australian Standard®

# Electromagnetic interference—Industrial, scientific and medical (ISM) radiofrequency equipment—Limits and methods of measurement



STANDARDS AUSTRALIA

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This Australian Standard was prepared by Committee TE/3, Electromagnetic Interference. It was approved on behalf of the Council of Standards Australia on 9 July 1990 and published on 15 October 1990.

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The following interests are represented on Committee TE/3:

Association of Consulting Engineers Australia

Aussat

Australian Broadcasting Corporation

Civil Aviation Authority

CSIRO—Division of Applied Physics

Confederation of Australian Industry

Consumer Electronics Suppliers Association

Department of Defence

Department of Transport and Communications

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Federation of Australian Radio Broadcasters

Institution of Radio and Electronics Engineers Australia

Macquarie University

Metropolitan Transit Authority (Melbourne)

Society of Automotive Engineers Australasia

Telecom Australia

Testing interests

Wireless Institute of Australia

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*This Standard was issued in draft form for comment as DR 88141.*

AS 2064—1990

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# Electromagnetic interference—Industrial, scientific and medical (ISM) radiofrequency equipment—Limits and methods of measurement

First published as AS 2064—1977.
Second edition 1990.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY NSW
ISBN 0 7262 6444 X

# PREFACE

This Standard was prepared by the Standards Australia Committee on Electromagnetic Interference as one of a series of Standards intended to facilitate control of electromagnetic interference and the compatibility of electrical and electronic equipment.

This Standard is not strictly a revision of AS 2064—1977 but is instead the text of the proposed recommendations of the International Special Committee on Radio Interference (CISPR) for the revision of IEC/CISPR 11 (1975)* in document CISPR/B(Central Office)23. Hence, the Standard is in CISPR format, with clause numbering the same as the CISPR document.

The purpose of this Standard is to establish limits for interference which are harmonized with the IEC international limits.

The deviations from CISPR/B(Central Office)23 (indicated in this Standard by a rule in the margin) are as follows:

Table I includes Australian frequency allocations for designated ISM use.

Table VI includes Australian additional frequency allocations and limits for specific safety services.

This Standard requires references to the following Standards or documents:

| | |
|---|---|
| AS | |
| 1052 | Electromagnetic interference—Measuring apparatus and measurement methods |
| 1053 | Electromagnetic interference—Television and FM-sound receiving equipment—Limits and methods of measurement |
| 1852 | International electrotechnical vocabulary |
| 1852(902) | Electromagnetic interference |
| 2772.1 | Radiofrequency radiation—Maximum exposure levels—100 kHz to 300 GHz |
| 2772.2 | Radiofrequency radiation—Principles and methods of measurement—300 kHz to 100 GHz |
| 3112 | Approval and test specification—Plugs and socket-outlets |
| IEC | |
| 50 | International electrotechnical vocabulary |
| 50(60) | Radiocommunications |
| 150 | Testing and calibration of ultrasonic therapeutic equipment |
| 801 | Electromagnetic compatibility for industrial-process measurement and control equipment |
| CISPR | |
| 15 | Limits and methods of measurement of radio interference characteristics of fluorescent lamps and luminaires |
| 20 | Measurement of the immunity of sound and television broadcast receivers and associated equipment in the frequency range 1.5 MHz to 30 MHz by the current-injection method. Guidance on immunity requirements for the reduction of interference caused by radio transmitters in the frequency range 26 MHz to 30 MHz. |
| ITU Regulation 63 | RR 73—General radio telegraph procedures in maritime mobile service |
| DOTAC Regulations | Australian table of frequency allocations |

* CISPR 11 Limits and methods of measurement of radio interference characteristics of industrial, scientific and medical (ISM) radio-frequency equipment (excluding surgical diathermy apparatus).

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STANDARDS AUSTRALIA

# Australian Standard

# Electromagnetic interference—Industrial, scientific and medical (ISM) radiofrequency equipment—Limits and methods of measurement

## 1 SCOPE AND APPLICATION

**1.1 Scope** This Standard describes the limits and methods of measurement applicable, to industrial, scientific and medical (ISM) equipment and also to spark erosion equipment. The frequency range covered extends from 9 kHz to 400 GHz.

**1.2 Application** Measurements on a test site apply to all equipment at the time of production. Measurements not on a test site apply to individual equipment at the places of installation and results of these measurements may not be applied to the same equipment at any other site.

NOTE: Requirements for lighting apparatus are contained in CISPR Publication 15.

## 2 DEFINITIONS

**2.1 General** For the purposes of this Standard the definitions contained in AS 1852(902) Chapter 161, IEC 50(60) and the following apply:

**2.2 Industrial, scientific and medical (ISM) radiofrequency equipment** Equipment or appliances designed to generate, or use locally, radiofrequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications and information technology and applications covered by other specific Standards.

**2.3 Electromagnetic radiation** The extended definition contained in AS 1852(902) Chapter 161 which includes near field and induction phenomena shall apply.

**2.4 The boundary of the equipment under test** An imaginary straight line periphery describing a simple geometric configuration encompassing the equipment under test, including all interconnecting cables.

**3 FREQUENCIES DESIGNATED FOR ISM USE** Certain frequencies are designated by the International Telecommunication Union (ITU) for use as fundamental frequencies for ISM equipment. These frequencies are listed in Table I, see note (1).

NOTE: Australian frequency allocations, as determined by the Department of Transport and Communications, have also been listed in Table I.

## 4 CLASSIFICATION OF ISM EQUIPMENT

**4.0 General** ISM equipment shall be labelled by the manufacturer indicating the Group and Class of the equipment.

NOTE: See Appendix A for examples of the classification of ISM equipment.

### 4.1 Separation into Groups

**4.1.1** *Group 1 ISM equipment* Group 1 contains all ISM equipment in which there is intentionally generated or used, conductively coupled radio frequency energy which is necessary for the internal functioning of the equipment itself.

**4.1.2** *Group 2 ISM equipment* Group 2 contains all ISM equipment, in which radio frequency energy is intentionally generated or used in the form of electromagnetic radiation for the treatment of material, and also spark erosion equipment.

### 4.2 Division into Classes

**4.2.1** *Class A* Class A equipment is equipment suitable for use in all establishments other than domestic and other than those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

Class A equipment shall meet Class A limits.

**4.2.2** *Class B* Class B equipment is equipment suitable for use in domestic establishments and for establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

Class B equipment shall meet Class B limits.

## 5 LIMITS OF ELECTROMAGNETIC DISTURBANCES

**5.0 General** Class A ISM equipment may be measured either on a test site or *in situ* as preferred by the manufacturer.

NOTE: Due to size, complexity or operating conditions some ISM equipment may have to be measured *in situ* in order to show compliance with the radiation disturbance limits specified herein.