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Australian/New Zealand Standard™

Electromagnetic compatibility (EMC)

Part 2.4: Environment—Compatibility levels in industrial plants for low-frequency conducted disturbances

STANDARDS Australia

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-034, Power Quality.

The objective of this Standard is to specify numerical compatibility levels for electromagnetic disturbances in industrial plants in the frequencies up to 9 kHz. The compatibility levels apply to industrial and non-public power distribution systems at voltages up to 35 kV and a frequency of 50 Hz or 60 Hz. Power supply systems used on ships, aircraft, offshore platforms and railways are excluded.

This Standard is identical with, and has been reproduced from IEC 61000-2-4, Ed. 1.0 (2002) *Electromagnetic compatibility (EMC)—Part 2-4: Environment—Compatibility levels in industrial plants for low-frequency conducted disturbances*.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text 'this part of IEC 61000' should read 'this Australian/New Zealand Standard'.

(c) A full point should be substituted for a comma when referring to a decimal marker.

The term 'informative' is used to define the application of the annex to which it applies. An informative annex is only for information and guidance.

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INTRODUCTION

IEC 61000 is published in separate parts according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description of the environment

Classification of the environment

Compatibility levels

Part 3: Limits

Emission limits

Immunity limits (in so far as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as International Standards, technical specifications or technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: 61000-3-11).

Detailed information on the various types of disturbances that can be expected on public power supply systems can be found in IEC 61000-2-1 and IEC 61000-2-12.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard

Electromagnetic compatibility (EMC)
Part 2.4: Environment—Compatibility levels in industrial plants for low-frequency conducted disturbances

1 Scope

This part of IEC 61000 is concerned with conducted disturbances in the frequency range from 0 kHz to 9 kHz. It gives numerical compatibility levels for industrial and non-public power distribution systems at nominal voltages up to 35 kV and a nominal frequency of 50 Hz or 60 Hz.

Power supply systems on ships, aircraft, offshore platforms and railways are not included.

The compatibility levels specified in this standard apply at the in-plant point of coupling. At the power input terminals of equipment receiving its supply from the above systems, the severity levels of the disturbances can, for the most part, be taken to be the same as the levels at the in-plant point of coupling. In some situations this is not so, particularly in the case of a long feeder dedicated to the supply of a particular load, or in the case of a disturbance generated or amplified within the installation of which the equipment forms a part.

Compatibility levels are specified for electromagnetic disturbances of the types which can be expected at any in-plant point of coupling (IPC) within industrial plants or other non-public networks, for guidance in

a) limits to be set for disturbance emission into industrial power supply systems (including the planning levels defined in 3.1.6);

   NOTE 1 A very wide range of conditions is possible in the electromagnetic environments of industrial and other non-public networks. These are approximated in this standard by the three classes described in Clause 4. However, it is the responsibility of the operator of such a network to take account of the particular electromagnetic and economic conditions, including equipment characteristics, in setting the above-mentioned limits.

b) the choice of immunity levels for the equipment within these systems.

The disturbance phenomena considered are:

– voltage deviations;
– voltage dips and short interruptions;
– voltage unbalance;
– power-frequency variations;
– harmonics up to order 50;
– interharmonics up to the 50th harmonic;
– voltage components at higher frequencies (above 50th harmonic);
– d.c. component;
– transient overvoltages.

The compatibility levels are given for different classes of the electromagnetic environment determined by the characteristics of the supply network.