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INTERNATIONAL STANDARD

Electromagnetic compatibility (EMC) –
Part 2-9: Environment – Description of HEMP environment – Radiated disturbance

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FOREWORD

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IEC 61000-2-9 has been prepared by subcommittee 77C: High power transient phenomena, of IEC technical committee 77: Electromagnetic compatibility. It is an International Standard.

It forms Part 2-9 of IEC 61000. It has the status of a horizontal basic EMC publication in accordance with IEC Guide 107.

This second edition cancels and replaces the first edition published in 1996. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) updating the document to provide new information on the variation of the early-time HEMP on the earth's surface and to provide new information on the late-time HEMP;
b) adding a new informative Annex A which provides details concerning the development of the early- and late-time standard waveforms in the main body, an explanation of the advantages and disadvantages for the use of the double exponential waveform, and an explanation of the far field region for the early-time HEMP.

The text of this International Standard is based on the following documents:

Draft	Report on voting
77C/347/FDIS	77C/350/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic compatibility (EMC)*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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 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 sections, published either as International Standards or as 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: IEC 61000-6-1).

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 2-9: Environment – Description of HEMP environment – Radiated disturbance

1 Scope

This part of IEC 61000 defines the high-altitude electromagnetic pulse (HEMP) environment that is one of the consequences of a high-altitude nuclear explosion.

There are two cases of nuclear detonations:

– high-altitude nuclear explosions;

– low-altitude nuclear explosions.

For civil systems, the most important case is the high-altitude nuclear explosion. In this case, the other effects of the nuclear explosion such as blast, ground shock, thermal and nuclear ionizing radiation are not present at the ground level. However, the electromagnetic pulse associated with the explosion can cause disruption of, and damage to, communications, electronic systems, electric power systems and other portions of the commercial critical infrastructures, thereby upsetting the stability of modern society.

The object of this document is to establish a common reference for the HEMP environment in order to select realistic stresses to apply to victim equipment for evaluating their performance and in order to develop protection methods to minimize the impacts of the HEMP.

2 Normative references

There are no normative references in this document.