

**Datorer och kontorsmaskiner -
Mätmetoder för elektriska och
magnetiska närfält**

Denna utgåva ersätter utgåva 1. Utgåva 2 utges i engelsk språkversion.

Denna standard anger metoder för mätning av elektriska och magnetiska fält från bildskärmar. Standarden är avsedd att ge en enhetlig beskrivning av mätutrustning, hur mätningarna utförs och hur mätresultaten redovisas.

**Computers and office machines -
Measuring methods for electric and
magnetic near fields**

This edition supersedes edition 1. Edition 2 is published in the English language version.

This standard specifies measuring methods for electric and magnetic near fields from Visual Display Units (VDUs). The object of this standard is to provide a uniform description of measuring equipment, measurement procedures and a uniform reporting method.

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Introduction

Since the early 1980s there has been a general debate about the possibility of adverse health effects resulting from human exposure to low levels of low frequency electromagnetic fields. Although all electrical and electronic equipment emits such fields, the Visual Display Unit (VDU) has been singled-out by some users as an object of particular concern. This standard is designed to address that concern by providing a product emission measurement, classification and marking system for VDUs. It should be emphasized that this standard is based on what is technically achievable and not on medical or epidemiological research. It is not intended to comment on the existence, or otherwise, of hazards - only on the existence of concern amongst some groups of VDU users about the potential for these hazards.

This standard is largely based on the MPR1990:8 and MPR1990:10 documents published by the Swedish board for technical accreditation (SWEDAC) in 1990 and generally known as the "MPR II" guidelines. These were produced in response to concern amongst some groups of VDU users when the Swedish government ordered SWEDAC (at the time called Statens Mät-och Provråd, or MPR) to establish a system for non-mandatory testing of VDUs. This resulted in the first edition of test methods (MPR-P 1987:1) being issued in 1987 which has since been generally known as "MPR I". After a trial period of three years this test method was revised, expanded and re-published as "MPR II". Since then, "MPR II" has been spread to many countries and is now accepted by many as a de-facto, market-driven, standard.

Some groups, notably TCO (The Swedish Confederation of Professional Employees) and JEIDA (Japan Electronic Industries Development Association), have produced alternative guidelines for performance levels. Other groups, such as the IEEE (Institute of Electrical and Electronic Engineers) and ECMA (European Computer Manufacturers Association) have published test methods based on the "MPR II" method but have not suggested performance categories. These performance levels and modified methods have been considered in the production of this standard.

The first issue of SS 436 14 90, published in 1989, specified measurements in the frequency domain. This was found to be impractical and was not adopted by users or industry.

Wide international use puts high demands on clarity and measurement rigour to ensure that measurements are made and interpreted uniformly. Since "MPR II" is only a national guideline it lacks the organisation and status of a formal standard.

Experience has shown the need for more than one performance level, therefore this standard contains three pre-defined performance categories. See clause 5 Emission classification.

The continued wide interest in VDU emissions has resulted in many organisations offering an in-situ measurement service. The lack of a standardised method and explanation of the difficulties involved in making such measurements has resulted in much confusion and reporting of invalid data. This standard addresses the problem by including a standardised measurement method for use outside an accredited laboratory.

NOTE: The total exposure of an individual results from the complex interaction of the emissions from all local devices, building wiring, building construction and other physical aspects. Exposure assessment is outside the scope of this standard.

The measurement methods contained in this standard are based on the "MPR II" emission section, updated and revised in accordance with the experience gained from the extensive number of tests made since its publication. The electrostatic field is reported as a field strength, rather than the artificially derived value of equivalent surface potential. Other modifications include the definition of multiple emission categories, a marking requirement, non-laboratory measurement methods and an explanation of measurement uncertainty and how it can be calculated.

1 Scope and object

This standard is intended for the measurement of low frequency electromagnetic emissions from Visual Display Units (VDUs), regardless of the display technology or power source. It is possible that it may be suitable for measuring other similar office equipment but anyone using it to do so must first verify its suitability. Future updates to this standard may include other types of office equipment.

This standard specifies the equipment to be used, the measurement procedures and the presentation of data in a report. The parameters included are electrostatic field, alternating electric field and alternating magnetic field. The electric and magnetic fields are divided into two frequency bands, Band I covers 5 Hz to 2000 Hz and Band II covers 2 kHz to 400 kHz. In order to simplify the task of product performance comparison, the standard contains three pre-defined sets of emission levels identified as Category A, Category B and Category C.

The object of this standard is to provide a uniform and reproducible measuring and reporting method in order to facilitate accurate comparison between VDUs of different types and between measurements made at different accredited measurement laboratories. This standard only concerns the technical aspects of emission measurements; medical or health effects are not in any way implied or suggested and safety matters are not considered. The pre-defined emission levels in categories A, B and C are for reference only.

2 References

In this standard references are given to:

MPR I	MPR-P-1987
MPR II	MPR 1990:8 and MPR 1990:10
TCO-91	Screen Facts 1991
JEIDA	JEIDA-G-15-1993
IEEE	IEEE Std 1140-1994
ECMA	ECMA/TC20/92 Final draft, second edition
ISO guide	Guide to the expression of uncertainty in measurement. ISBN 92-67-10188-9