IEEE Recommended Practice—Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC)—Testing and measurement techniques—Flickermeter—Functional and design specifications

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Abstract: IEC 61000-4-15:2010 is adopted by this standard. IEC 61000-4-15:2010 gives a functional and design specification for flicker measuring apparatus intended to indicate the correct flicker perception level for all practical voltage fluctuation waveforms. Information is presented to enable such an instrument to be constructed. A method is given for the evaluation of flicker severity on the basis of the output of flickermeters complying with this standard. The object of IEC 61000-4-15:2010 is to provide basic information for the design and the instrumentation of an analogue or digital flicker measuring apparatus. It does not give tolerance limit values of flicker severity.
Keywords: adoption, flicker, IEEE 1453, voltage fluctuation

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Voltage fluctuations on electric power systems sometimes give rise to noticeable illumination changes from lighting equipment. The frequency of these voltage fluctuations is much less than the 50 Hz or 60 Hz supply frequency; however, they may occur with enough frequency and magnitude to cause irritation for people observing the illumination changes. This phenomenon is often referred to as flicker, lamp flicker, and sometimes voltage flicker. Often times, the terms have been used interchangeably. For many years, IEEE Std 141™-1993 and IEEE Std 519™-1992 have contained charts showing allowable voltage fluctuations. These charts in IEEE Std 141-1993 and IEEE Std 519-1992 show allowable voltage change magnitude on the vertical axis and frequency of occurrence on the horizontal axis. Although it is unclear, they appear to be based on 60 W, 120 V incandescent lamps subjected to rectangular voltage fluctuations. The advent of high-power electronic utilization equipment and mitigation equipment has given rise to some very complex voltage fluctuations that are not easily handled by IEEE Std 141-1993 and IEEE Std 519-1992. For this reason, the IEEE has worked in close cooperation with the International Union for Electroheat (UIE) and the International Electrotechnical Commission (IEC) to enhance existing standards to include a broader part of the world community.

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Part 4-15: Testing and measurement techniques – Flickermeter – Functional and design specifications

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IEC 61000-4-15 is based on work by the "Disturbances" Working Group of the International Union for Electroheat (UIE), on work of the IEEE, and on work within IEC itself.

It forms part 4-15 of the IEC 61000 series. It has the status of a basic EMC publication in accordance with IEC Guide 107.

This second edition cancels and replaces the first edition published in 1997 and its Amendment 1 (2003) and constitutes a technical revision. This new edition, in particular, adds or clarifies the definition of several directly measured parameters, so that diverging interpretations are avoided.

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The text of this standard is based on the following documents:

FDIS	Report on voting
77A/722/FDIS	77A/730/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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INTRODUCTION

IEC 61000-4 is a part of the IEC 61000 series, according to the following structure:

Part 1: General
- General consideration (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, as technical specifications or technical reports, some of which have already been published as sections. Others are and will be published with the part number followed by a dash and completed by a second number identifying the subdivision (example: IEC 61000-6-1).

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