

# P1453

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**Type of Project:** Revision to IEEE Standard 1453-2011  
**PAR Request Date:** 19-Feb-2013  
**PAR Approval Date:** 10-May-2013  
**PAR Expiration Date:** 31-Dec-2017  
**Status:** PAR for a Revision to an existing IEEE Standard  
**Root Project:** 1453-2011

**1.1 Project Number:** P1453  
**1.2 Type of Document:** Recommended Practice  
**1.3 Life Cycle:** Full Use

**2.1 Title:** Recommended Practice for the Analysis of Fluctuating Installations on Power Systems

**Changes in title:** IEEE Recommended Practice—Adoption of IEC 61000-4-15:2010, Analysis of Electromagnetic Compatibility (EMC) Testing and Measurement Techniques—Power Flickermeter—Functional and design specifications

**3.1 Working Group:** Light Flicker Working Group (PE/T&D/PQ-1453\_WG)

**Contact Information for Working Group Chair**

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None

**3.2 Sponsoring Society and Committee:** IEEE Power and Energy Society/Transmission and Distribution (PE/T&D)

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**4.1 Type of Ballot:** Individual

**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:** 12/2016

**4.3 Projected Completion Date for Submittal to RevCom:** 10/2017

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 30

**5.2 Scope:** This document provides background on the light flicker phenomenon that arises out of the fluctuations in power demands of variable loads. A flicker measurement method is presented using a meter that is completely described in IEC Standard 61000-4-15. The short-term (Pst) and long-term (Plt) flicker indices used for the analysis of flicker data are defined. Flicker limits for various voltage levels are presented. An assessment procedure for evaluating flicker compliance against emission limits is described. Methodologies to analyze background flicker to identify the flicker contribution of single loads are also presented.

The document provides ways to estimate flicker levels at the PCC (Point of Common Coupling) depending on the type of the load. The document includes example terms and language that can be the basis for defining relative responsibilities and assessment methods for customer installations that may cause flicker issues.

**Changes in scope:** This document provides background on the light functional and design specification for flicker measuring apparatus that arises out of the correct fluctuations flicker in power level demands for all variable practical loads. A fluctuation flicker waveforms measurement information method is presented using enable a such meter that instrument is to completely be described constructed in AIEC method Standard is 61000-4-15. given The for short-term the (Pst) evaluation and of long-term (Plt) flicker severity indices used the for basis of the output analysis of flickermeters flicker complying data with are this standard defined. The Flicker flicker meter limits specifications for in various this voltage part levels of are IEC presented. 61000 An relate assessment only procedure to for measurements evaluating of flicker 120 compliance V against and emission 230 limits V<sub>i</sub> is 50 Hz and 60 Hz inputs described. Characteristics Methodologies of to some analyze incandescent background lamps flicker for other voltages are sufficiently similar to the identify values in Table 1 and Table 2,

that the use of flicker contribution a correction factor can be applied for those other voltages. Some of these single correction loads factors are provided also in the Annex B presented. Detailed The specifications document for provides voltages ways and to frequencies estimate other flicker than levels those at given the above, PCC remain (Point under of consideration. Common The Coupling) object depending of on this the part type of IEC the 61000 load. is The to document provide includes basic example information terms for the design and the language instrumentation that of can be analogue the or basis digital for flicker defining measuring relative apparatus. responsibilities it and does assessment not methods give for tolerance customer limit installations values that of may cause flicker severity issues.

**5.3 Is the completion of this standard dependent upon the completion of another standard:** No

**5.4 Purpose:** This document provides guidance to system operators, owners, and engineers that are responsible for providing electrical service to loads that cause voltage fluctuations. It provides guidance on the principles and methodology that can be used to determine requirements for connecting fluctuating loads to both radial and network systems. Methods for determining appropriate flicker planning levels and emission limits for fluctuating loads as well as those that create rapid voltage changes are provided.

**Changes in purpose:** This document does provides not guidance contain to a system purpose operators, clause owners, and engineers that are responsible for providing electrical service to loads that cause voltage fluctuations. It provides guidance on the principles and methodology that can be used to determine requirements for connecting fluctuating loads to both radial and network systems. Methods for determining appropriate flicker planning levels and emission limits for fluctuating loads as well as those that create rapid voltage changes are provided.

**5.5 Need for the Project:** The need for the project is to provide the industry with flicker analysis methods intended to indicate the correct flicker perception level for all practical voltage fluctuation waveforms.

**5.6 Stakeholders for the Standard:** The stakeholders for this standard are electric utilities, manufacturers and electric utility end-users.

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## Intellectual Property

**6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?:** No

**6.1.b. Is the Sponsor aware of possible registration activity related to this project?:** No

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**7.1 Are there other standards or projects with a similar scope?:** Yes

**If Yes please explain:** 1453-2011 and 1453.1-2012 have similar scopes. This new document will replace both of these existing documents. The new document will reference the IEC documents adopted in the 1453-2011 and 1453.1-2012 and provide additional information.

**and answer the following**

**Sponsor Organization:** Light Flicker Working Group (PE/T&D/PQ-1453\_WG)

**Project/Standard Number:** 1453-2011

**Project/Standard Date:** 01-Jan-2012

**Project/Standard Title:** IEEE Recommended Practice--

Adoption of IEC 61000-4-15:2010,

Electromagnetic compatibility

(EMC)--Testing and measurement

techniques--Flicker meter--

Functional and design specifications

**7.2 Joint Development**

**Is it the intent to develop this document jointly with another organization?:** No

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**8.1 Additional Explanatory Notes (Item Number and Explanation):** 1.1: This project will combine 1453 and 1453.1 into one document, therefore superseding both previous documents. To eliminate confusion within the market place to the users the original numbering of 1453 is requested to remain the same.

5.2: IEC 61000-4-15: Electromagnetic compatibility (EMC) -Part 4: Testing and measurement techniques - Section 15:

Flicker meter - Functional and design specifications