

PC62.69a

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Type of Project: Amendment to IEEE Standard C62.69-2016

PAR Request Date: 02-Aug-2016

PAR Approval Date: 22-Sep-2016

PAR Expiration Date: 31-Dec-2020

Status: PAR for an Amendment to an existing IEEE Standard

Root Project: C62.69-2016

1.1 Project Number: PC62.69a

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for the Surge Parameters of Isolating Transformers Used in Networking Devices and Equipment Amendment: Addition of Clause 4.5 Saturated Core Secondary Winding Parameters

3.1 Working Group: 3.6.2 LV Solid State Surge Protective Components WG (PE/SPDLV/LV3.6.2)

Contact Information for Working Group Chair

Name: Michael Maytum

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Contact Information for Working Group Vice-Chair

None

3.2 Sponsoring Society and Committee: IEEE Power and Energy Society/Surge Protective Devices/Low Voltage (PE/SPDLV)

Contact Information for Sponsor Chair

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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: 01/2017

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 10/2017

5.1 Approximate number of people expected to be actively involved in the development of this project: 8

5.2.a. Scope of the complete standard: This standard sets terms, test methods, test circuits, measurement procedures and preferred result values for the surge parameters of isolating transformers used in networking devices and equipment. Three types of isolating transformer are considered; mains, switch mode power supply and signal (e.g. Ethernet data). The surge parameters of the isolating transformer insulation barrier covered by this standard are:

- Rated impulse voltage
- Input winding to output winding capacitance
- Insulation resistance

Additional parameters for signal isolating transformers are:

- Core saturation voltage-time product and saturated secondary winding parameters
- Rated input winding rms current for a given temperature rise

This standard does not cover the transformer parameters required to ensure appropriate operation on the service e.g. signal transformer return loss.

Changes in scope: This standard sets terms, test methods, test circuits, measurement procedures; and preferred result values for the surge parameters of isolating transformers used in networking devices and equipment. Three types of isolating transformer are considered; mains low frequency power, high switch frequency power (switching mode power supplies) supply and signal (e.g., Ethernet data). The surge parameters of the isolating transformer insulation barrier covered by this standard are as follows: - Rated impulse voltage - Input winding to output winding capacitance - Insulation resistance Additional parameters for signal isolating transformers are as follows: - Core saturation voltage-time product and saturated secondary winding parameters - Rated input winding rms current for a given temperature rise This standard does not cover the transformer parameters required to help ensure appropriate operation on the service (e.g., signal transformer return loss).

5.2.b. Scope of the project: Add one new clause 4.5 Saturated core secondary winding parameters This clause describes test circuits and measurement techniques to determine the secondary peak current, the saturated secondary winding inductance and winding resistance.

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

5.4 Purpose: The main purpose of this standard is to define a series of transformer impulse withstand voltage ratings that are higher than those of IEEE Std 802.3(TM) [B6] with the intent to improve transformer insulation performance in uncontrolled environments. In the interests of International standardization the voltage values used are harmonized with the series defined in IEC 60664-1[B7] for low-voltage equipment insulation coordination. This IEEE standard is applicable to home networking installations, which are typically uncontrolled environments, where the surge voltage levels and the corresponding required transformer impulse withstand voltages can be higher than the LAN A controlled environment as defined by IEEE Std 802.3(TM) [B6].

Changes in purpose: The main purpose of this standard is to define a series of transformer impulse withstand voltage ratings that are higher than those of IEEE Std 802.3(TM) [~~B2~~~~B6~~]+ with the intent to improve transformer insulation performance in uncontrolled environments. In the interests of ~~international~~**International** standardization, the voltage values used are harmonized with the series defined in IEC 60664-1[~~B1~~~~B7~~] for low-voltage equipment insulation coordination. This IEEE standard is applicable to home networking installations, which are typically uncontrolled environments, where the surge voltage levels and the corresponding required transformer impulse withstand voltages can be higher than the LAN A controlled environment as defined by IEEE Std 802.3(TM) [~~B2~~~~B6~~].

5.5 Need for the Project: In writing the outline for PC62.42.6 it was realised the transformer secondary winding parameters in core saturation were not covered in C62.69. These parameters are important to calculate the energy dump after the core saturates. The additional clause 4.5 covers the determination of secondary winding saturated inductance value and resistance

5.6 Stakeholders for the Standard: Manufacturers, designers and SPC manufacturers

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: Yes

If yes please explain: Licence agreed to reproduce parts of Differential surge stress reduction by Ethernet magnetics tutorial.

<<http://www.ictsp-essays.info/product/differential-surge-stress-reduction-by-ethernet-magnetics/>>

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

7.1 Are there other standards or projects with a similar scope?: No

7.2 Joint Development

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

8.1 Additional Explanatory Notes: # 5.4: [B6] IEEE STANDARD 802.3-2015, IEEE Standard for Ethernet [B7] IEC 60664-1:2007, Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests

7.3 B: As yet the SC 37B interest is not confirmed, it will be discussed at the September SC37B WG3 meeting