ICS 29.180
CCS K 41

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 20840.103-2020

Instrument transformers - Part 103: The use of instrument transformers for power quality measurement

Issued on: March 31, 2020 **Implemented on: October 1, 2020**

Issued by: State Administration for Market Regulation, China National Standardization Administration

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Foreword

GB/T 20840 "Transformer" is divided into the following parts.

--- Part 1.General technical requirements;

--- Part 2.Supplementary technical requirements for current transformers;

--- Part 3.Supplementary technical requirements for electromagnetic voltage transformers;

--- Part 4.Supplementary technical requirements for combined transformers;

--- Part 5.Supplementary technical requirements for capacitive voltage transformers;

--- Part 6.Supplementary general technical requirements for low power transformers;

--- Part 7.Electronic Voltage Transformer;

--- Part 8.Electronic Current Transformer;

--- Part 9.Digital Interface of Transformer;

--- Part 102.Ferromagnetic resonance in substations with electromagnetic voltage transformers;

--- Part 103.Application of transformers in power quality measurement.

This part is Part 103 of GB/T 20840.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the redrafting method to modify the use of IEC TR61869-103..2012 "Transformer Transformer in Power Quality Measurement

application".

This part is structurally adjusted compared to IEC TR61869-103..2012.Appendix A lists this part and IEC TR61869-

A comparative list of chapters, articles, figures, and table numbers in 103..2012.

There are technical differences between this part and IEC TR61869-103..2012, and the terms involved in these differences have been adopted on the outside pages

The vertical single line (|) in the marginal position is marked. Appendix B gives a list of corresponding technical differences and their causes.

This section also made the following editorial changes.

--- Modified the standard name;

--- Chapter 1 adds notes on the high voltage, medium voltage and low voltage voltage ranges;

--- 5.2 replaced "IEC /TC38" with "Transformer Professional";

--- D.1 Note content has been adjusted according to the actual situation in my country;

--- D.2 changed "10/12cycles" to "10 cycles";

--- Add IEC 60050-311..2001 and IEC 60050-604.1987 in the reference;

--- The formulas of the full text are numbered uniformly.

This part is proposed by China Electrical Equipment Industry Association.

This part is under the jurisdiction of the National Transformer Standardization Technical Committee (SAC/TC222).

This section was drafted by. State Grid Shaanxi Electric Power Research Institute, Shenyang Transformer Research Institute Co., Ltd., Yunnan Power

Network Co., Ltd. Electric Power Research Institute, China Electric Power Research Institute Co., Ltd., Dalian First Transformer Co., Ltd., Dalian

North Transformer Group Co., Ltd., Jiangsu Kexing Electric Co., Ltd., Zhejiang Skyline Transformer Co., Ltd., Jiangsu Jingjiang Transformer Co., Ltd. have

Limited company, Chongqing Shancheng Electric Appliance Factory Co., Ltd., State Grid Jilin Electric Power Co., Ltd. Electric Power Research Institute, State Grid Jiangxi Electric Power Co., Ltd.

Division Electric Power Research Institute, State Grid Shanghai Electric Power Company Electric Power Research Institute.

1 Scope

This part of GB/T 20840 gives the definition and description of power quality parameters, the effect of transformers on power quality measurement and power

Quality testing guidance.

This section applies to electromagnetic and electronic transformers working in power frequency AC power (power supply) systems, which have analog or digital

Power output, power supply gas measuring instrument, used for power quality parameter measurement and result evaluation.

This section is intended to provide guidance for the measurement of power quality parameters using high-voltage transformers.

The power quality parameters in this part include grid frequency, power supply voltage and current amplitude, flicker, power supply voltage sag and swell, voltage interruption,

Transient voltage, unbalanced supply voltage, voltage current harmonics and interharmonics, signal voltage (superimposed) on the supply voltage and fast voltage

Variety.

Note. The voltage ranges of the low-voltage, medium-voltage and high-voltage electromagnetic transformers mentioned in this section are. the low-voltage is less than 1kV AC voltage level

The voltage is 1kV and above, 52kV and below AC voltage level, and the high voltage is above 52kV AC voltage level.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article

Pieces. For the cited documents without date, the latest version (including all amendments) applies to this document.

GB/T 6592-2010 Electrical and electronic measuring equipment performance representation (IEC 60359..2001, IDT)

GB/T 17626.7-2017 Electromagnetic compatibility test and measurement technology Power system and connected equipment harmonic and inter-harmonic measurement and

Guidelines for measuring instruments (IEC 61000-4-7..2009, IDT)

GB/T 17626.15-2011 Electromagnetic compatibility test and measurement technology scintillator function and design specifications (IEC 61000-4-

15 .2003, IDT)

GB/T 17626.30-2012 Electromagnetic compatibility test and measurement technology power quality measurement method (IEC 61000-4-30..2008,

IDT)

GB/T 18039.3-2017 Compatible water for low-frequency conducted disturbance and signal transmission of public low-voltage power supply system in electromagnetic compatibility environment

Ping (IEC 61000-2-2..2002, IDT)

GB /Z 18039.5-2003 Electromagnetic compatibility environment Electromagnetic environment of low-frequency conduction disturbance and signal transmission of public power supply system

(IEC 61000-2-1..1990, IDT)

GB/T 18216.12-2010 AC 1000V and DC 1500V and below low-voltage power distribution system electrical safety protection measures

Test, measurement or monitoring equipment. Part 12.Performance measurement and monitoring device (PMD) (IEC 61557-12..2007, IDT)

GB/T 20840.8-2007 Transformers Part 8.Electronic current transformers (IEC 60044-8..2002, MOD)

EN50160..2007 Voltage characteristics of public distribution system power supply (Voltagecharacteristicsofelectricitysuppliedby

publicdistributionnetworks)

3 Terms and definitions

The following terms and definitions apply to this document.