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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 17215.303-2022

Replacing GB/T 17215.303-2013

Electricity metering equipment (AC) - Particular requirements - Part 3: Digital input electricity meters

交流电测量设备 特殊要求 第3部分：数字化电能表

Issued on: April 15, 2022 **Implemented on: November 1, 2022**

Issued by: State Administration for Market Regulation;
Standardization Administration of China

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

1.Structure and Drafting Rules of Standardization Documents" drafted. This document is part 3 of GB/T 17215.3.GB/T 17215.3 has released the following parts.

---GB/T 17215.301 Special requirements for multifunctional electric energy meters;

---GB/T 17215.302 Particular requirements for alternating current measuring equipment Part

2.Static harmonic active energy meters;

--- GB/T 17215.303 Particular requirements for alternating current measuring equipment Part

3.Digital electric energy meter;

---GB/T 17215.304 Particular requirements for alternating current measuring equipment Part

4.Static electricity connected via electronic transformers energy table;

--- GB/T 17215.311 Particular requirements for alternating current measuring equipment Part

11.Electromechanical active energy meters (0.5, 1 and 2);

---GB/T 17215.321 Electrical Measuring Equipment (AC) - Special Requirements Part

21.Static Active Energy Meters (Class A, B, C, D and E);

--- GB/T 17215.323 Particular requirements for alternating current measuring equipment Part

1 Scope

China's national requirements for digital input electricity meters - meters that never see the primary voltage or current, and receive sampled values over a network instead. It specifies the classification and standard electrical values, the structure, the meter marking and documentation, the metrological performance requirements and tests, the structural safety requirements, the climatic environment, external influences, the protection of metrological performance, the electrical requirements, the functional requirements and the type tests. It applies to newly manufactured meters installed on 50 Hz or 60 Hz networks, connected through electronic transformers or stand-alone merging units, and fed with digitised sampled values conforming to DL/T 860.92 or GB/T 20840.9. In a digital substation there is no analogue signal to meter. The current and voltage are digitised at the switchyard by an electronic transformer or a merging unit and published on a process bus as a stream of sampled values, and every protection relay, recorder and meter takes the same stream. That changes what a meter is. Its accuracy no longer depends on an input circuit at all: it depends on the sampled value stream and on the arithmetic performed on it, and the errors that matter are of a different kind - lost or delayed frames, timestamp jitter, loss of time synchronisation, a subscription to the wrong dataset, a quality flag ignored. A meter that computes perfectly from corrupted or misaligned input is worse than an inaccurate analogue one, because nothing in the reading shows that anything is wrong. The standard therefore covers both the metrology and the digital behaviour: how accuracy is defined and tested when the input is a data stream, what the meter must do when frames are missing or quality flags are set, how time synchronisation is required and verified, and how the metrological configuration is protected from alteration. Issued on 15 April 2022 and in force since 1 November 2022, it replaces GB/T 17215.303-2013.

This document specifies the classification and standard electricity value, structure, meter identification and Documentation, metrological performance requirements and tests, structural safety requirements, climatic environment, external influences, metrological performance protection requirements, electrical requirements, functional requirements Request, type test. This document is suitable for installation and use in 50Hz or 60Hz power grid, via Electronic Transformer (ET) or Independent Merging Unit (SAMU) Access, and input the newly manufactured meter that complies with the DL/T 860.92 or GB/T 20840.9 specification of the digitized sampling value.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 2423.1-2008 Environmental Testing of Electrical and Electronic Products Part

11 Measuring equipment

GB/T 17215.301-2007 Special requirements for multifunctional electric energy meters

GB/T 17626.2-2018 Electromagnetic Compatibility Test and Measurement Technology Electrostatic Discharge Immunity Test

GB/T 17626.3-2016 Electromagnetic compatibility test and measurement technology Radio frequency electromagnetic field radiation immunity test

GB/T 17626.4-2018 Electromagnetic Compatibility Test and Measurement Technology Electrical Fast Transient Burst Immunity Test

GB/T 17626.5-2019 Electromagnetic Compatibility Test and Measurement Technology Surge (Shock) Immunity Test

GB/T 17626.6-2017 Electromagnetic Compatibility Test and Measurement Technology Conducted Disturbance Immunity Induced by Radio Frequency Fields

GB/T 17626.12-2013 Electromagnetic Compatibility Test and Measurement Technology Ringing Wave Immunity Test

GB/T 17626.18-2016 Electromagnetic Compatibility Test and Measurement Technology Damped Oscillating Wave Immunity Test GB T17626.20-2014 Electromagnetic Compatibility Test and Measurement Technology Transverse Electromagnetic Wave (TEM) Waveguide Emission and Immunity test

GB/T 17626.29-2006 Electromagnetic compatibility test and measurement technology DC power input port voltage dips, short-term interruptions and Voltage Variation Immunity Test