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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 35186-2025

Replacing GB/T 35186-2017

Performance evaluation of measuring system for natural gas

天然气计量系统性能评价

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document replaces GB/T 35186-2017 "Performance Evaluation of Natural Gas Metering Systems". Compared with GB/T 35186-2017, except for the structure... Aside from adjustments and editorial changes, the main technical changes are as follows:

- a) The requirements for the configuration of measuring instruments for calorific value determination have been added (see 4.1);
- b) Evaluation requirements for channel flow meters have been added (see 4.2);
- c) The uncertainty and evaluation requirements for determining calorific value using the correlation method have been added (see 4.3.3 and 5.2.2);
- d) Added performance evaluation requirements for the sampling system (see 5.4.1);

- e) Added standard gas quality verification requirements (see 5.4.2.6);
- f) Added requirements for chromatograph linearity testing (see 5.4.2.7);
- g) A method for calculating the measurement uncertainty of channel flowmeters has been added, and the compressibility factor under operating conditions is calculated using GB/T 17747.3. The uncertainty method and the evaluation method for the uncertainty of calorific value assignment have been modified, and equation (C.5) has been changed [see Appendix C, Appendix B of the 2017 edition, and equation (B.5)]. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Petroleum and Natural Gas (SAC/TC355). This document was drafted by: West-East Gas Pipeline Branch of China Pipeline Network Corporation, and China Petroleum Engineering & Construction Corporation. Southwest Branch of China Petroleum & Chemical Corporation, Daqing Oilfield Design Institute Co., Ltd., Guangdong Dapeng LNG Co., Ltd., China Petroleum & Chemical Corporation Natural Gas Yuji Pipeline Branch, China Oil & Gas Pipeline Network Corporation, China Pipeline Network Corporation Western Pipeline Co., Ltd., and other companies. Oil and Gas Metering Center of Southwest Pipeline Co., Ltd. of China National Pipeline Network Corporation, Beijing Pipeline Co., Ltd. of China National Pipeline Network Corporation, and Beijing Bosida New Century Measurement and Control Technology Co., Ltd. The main drafters of this document are: Song Chaofan, Wu Yan, Liu Zhe, Xu Gang, Fang Fusheng, Tang Xianming, Lin Min, Li Zhiwen, Zhang Dengfeng, and Cui Shaohua. Zhang Xuhe, Liu Yiwen, Wang Hailan, Zhou Lei, Wang Duocai, Guo Zhe, Qiu Hui, Zhou Yang, Guo Zhen, Xu Juan, Guo Jing, Huang Guanwen, Li Jia. This document was first published in 2017, and this is its first revision. Performance evaluation of natural gas metering system

1 Scope

GB/T 35186-2025 is the Chinese national standard covering judging a gas metering station as a whole - the meter, the pressure and temperature transmitters, the flow computer and the gas composition, the uncertainty each contributes, and the combined uncertainty on the volume that appears on the invoice. At 22,000 words. It replaces GB/T 35186-2017, and it belongs with the orifice metering standard GB/T 21446-2025. In force from 1 May 2026. Issued on 5 October 2025, it has been in force since 1 May 2026, replacing GB/T 35186-2017.

This document specifies the content, methods, procedures, and results of performance evaluation for natural gas metering systems. This document applies to natural gas metering systems that conform to GB/T 18603. Other natural gas metering systems may refer to this document for further information.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. document.

GB/T 11062 Calculation Methods for Calorific Value, Density, Relative Density and Wobbe Index of Natural Gas

GB/T 13609 Natural Gas Sampling Guidelines

GB/T 13610 Compositional Analysis of Natural Gas - Gas Chromatography

GB/T 17747 (all parts) Calculation of natural gas compressibility factor

GB/T 18603 Technical Requirements for Natural Gas Metering Systems

GB/T 18604 Measurement of Natural Gas Flow Rate Using Ultrasonic Gas Flow Meters

GB/T 21391 Measurement of Natural Gas Flow Rate Using a Gas Turbine Flow Meter

GB/T 21446 Measurement of Natural Gas Flow Rate Using a Standard Orifice Plate Flow Meter

GB/T 22723 Determination of Energy of Natural Gas

GB/T 27894 (all parts) Determination of composition of natural gas by gas chromatography and calculation of related uncertainties

GB/T 30490 Automatic Sampling Method for Natural Gas

GB/T 30491 (all parts) Calculation of thermodynamic properties of natural gas

GB/T 30500 Gas Ultrasonic Flow Meter In-Service Inspection - Sound Velocity Test Method