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

GB/T 6592-2010

Replacing GB/T 6592-1996

**Electrical and electronic measuring equipment -- Expression of
performance
(English Translation)**

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard is equivalent to IEC 60359.:2001 "Electrical and Electronic Measurement Equipment Performance Representation".

This standard replaces GB/T 6592-1996 "Performance representation of electrical and electronic measuring equipment".

The main differences between this standard and GB/T 6592-1996 are as follows.

- normative reference documents, only cited the new version of the International Electrotechnical Vocabulary IEC 60050-300.:2001 and ISO/IEC GUIDE EXPRES..1995 Guidance on Measurement Uncertainty;
- terminology, the deletion of the standard has nothing to do with the true value, agreed true value, inherent error, work error, error limit and other terms, increase the measurement, (measurement) uncertainty, calibration,, curve, traceability, metrological characteristics, uncertainty limits, (Instrument) the basic uncertainty, instrument work uncertainty and other terms;
- Uncertainty adaptation requirements based on the "Measurement Uncertainty

Representation Guide" (GUM) in instrument performance representation;

--- use the proper name of the new version of the International Electrotechnical Vocabulary (IEV);

- provide a wider and more accurate choice in terms of the limits of the narrative uncertainty.

This standard is proposed by the China Machinery Industry Federation.

This standard by the National Electrotechnical Instrumentation Standardization Technical Committee (SAC/TC104) centralized.

The drafting of this standard unit. Harbin Institute of Electrical Instrument, Shanghai Institute of Metrology and Testing Technology, Shanghai Ying Fu special electronic technology limited the company.

Introduction

The recommendations of the CECM1 recommendation of the cross-organization "Measurement Uncertainty Representation Guide" (GUM) are more the traditional method of expressing the accuracy and accuracy of the measurement in terms of truth and error terms is clearly being expressed in terms of uncertainty Law replaced. The inherent flaws of the true value concept (the resulting errors) undoubtedly make the current measurement field increasingly dependent on uncertainty Concept, although the main content of the measurement instrument performance standards is still described in traditional terms. The most common habit of metrology the widening of the gap between the standard vocabulary has led the Standardization Organization to revise these publications in conjunction with its technical committee.

1) International Metrology Committee.

The new international standard IEC 60359 was developed to harmonize with the GUM. In its formal approval process, coincides with the new Version of the International Electrotechnical Vocabulary (IEV) published on the chapter on the measurement, to take this opportunity to be consistent with the terminology used in IEV.

The main performance characteristics of a meter are those who use the instrument to obtain the results of the uncertainty. GUM provides a generic technique Language and a computational framework are used to synthesize the uncertainty of different sources, which is essentially a measure of the amount of the other measure function the amount of uncertainty, rather than assess the uncertainty of the instrument, that is, with the instrument for a single direct measurement of the uncertainty of the results. GUM will be which is treated as a Class B Uncertainty component, from the information provided by the instrument manufacturer or calibrator, with the expansion of the given inclusion factor Fixed degree. Therefore, the current standard in the presentation and evaluation of instrument

uncertainty when used in the form of consistent with the expression of GUM. That said in the description of instrument performance requirements with the term limit of uncertainty to replace the error limit, but also means to carefully distinguish between the instrument indication and Because it describes the set of values to be measured.

To this end, this standard systematically uses the calibration map concept (consistent with IEV). This describes the basic uncertainty, the amount of change with the work the interrelationship between uncertainty is also very helpful. By the way, this distinction is essential to the new measurement system the measurement system is based on a measurement system with internal software or using a microprocessor with more than one input (multi-sensor system). Generalize to say that the system needs to rely on a binding premise of the instrument hardware to deal with the problem. They are also allowed when specifying performance characteristics Wider range of options.

Of course, the terminology and concept of metrology from the long tradition of the transition to modern, many people will need some psychological adjustment, and this tone the whole is absolutely necessary, because from the pointer - dial instrumentation era to the application of modern instruments has taken a huge number of steps. Current technology the vast majority of the specifications are written in the term "error limit", and whether the proposed corrections for the quantity of influence have been included Often ambiguous. However, it is not difficult to translate the existing technical specifications into terms that conform to this standard, as long as this vague is eliminated, it is easy to align the old specification with this standard by replacing the "error limit" with the "instrument uncertainty limit" described in Chapter 5 Chapter 5 of the standard provides instructions on the context of the assessment of these limits (if any) to be satisfactorily adjusted to this standard Given the definition.

Performance of electrical and electronic measuring equipment

1 Scope

This standard specifies the following performance specifications for electrical and electronic instrumentation for industrial applications.

- the measurement of electrical parameters of the instructions and recording instruments;
- the amount of electricity to provide electricity;
- to provide electrical output signal measurement chain of all links of non-electric measuring instruments.

This standard applies to performance specifications that are normally used in industrial applications under steady-state conditions (see 3.1.15).

This standard is based on the measurement uncertainty of the measurement uncertainty detailed in the GUM and refers to the GUM used to determine the the value range

represents the statistical method of uncertainty (including the source of uncertainty that can not be ignored in the traceability chain).

This standard does not involve the propagation of uncertainties beyond the instrument or (measuring equipment) range, although it has been taken into account that the excess performance Through the compliance test.

The purpose of this standard is to provide a means to ensure that the provisions of the standard and determine the scope of the standard equipment within the consistency of consistency.

All other necessary provisions for a particular type of equipment applicable to this standard are governed by the corresponding IEC product standards.

For example, the choice of measurement characteristics and measurement range, the amount of influence and the determination of the specified range of work are regulated by IEC product standards.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

IEC 60050-300.:2001 (all parts) International Electrotechnical Vocabulary Electrotechnical and Electronic Measurement Methods and Measuring Equipment (International electrotechnicalvocabulary (IEV) -Electricalandelectronicmeasurements andmeasuringinstruments (alparts)) ISO/IEC GUIDEEXPRES..1995 Guidance for the measurement of uncertainty (Guidetotheexpressionofuncertainty inmeasurement

3 Terms and definitions

IEC 60050-300.:2001 Definitions and the following terms and definitions apply to this document.

3.1 Basic terms and definitions

3.1.1

Measured measurand

The amount of the object to be measured is estimated by the measurement system in the assumed state during the measurement activity.

Note 1: The measured value can be called an undetected value if it is not affected by the measuring instrument.