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

GB/T 27759-2011

**Measurement of fluid flow -- Procedures for the evaluation of
uncertainties**

流体流量测量 不确定度评定程序

(English Translation)

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Table of Contents

Introduction	
1 Scope	
2 Normative references	
3 Terms and definitions	
4 Symbols and abbreviations	
4.1 Symbols	
4.2 Subscripts	
Evaluation of uncertainty in measurement	5
Uncertainty Evaluation of Class A	6
6.1 General	
6.2 Calculation Step	
7 Class B Uncertainty Evaluation	
7.1 General	
7.2 Calculation Method	
7.3 Rectangular probability distribution	
7.4 Normal probability distribution	
7.5 8 triangular probability distribution	
7.6 Bimodal probability distribution	
7.7 Determine the probability distribution of	
7.8 Asymmetric probability distribution	
8 9 sensitivity coefficient	
8.1 General	
8.2 Analysis	
8.3 Numerical Method	

Foreword

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

This standard uses the translation method identical with ISO 5168:2005 "Fluid Flow Measurement Uncertainty Evaluation Program" (in English).

This standard makes the following editorial changes.

--- Is consistent with JJF1059-1999 "Evaluation and Expression of Uncertainty in

Measurement" symbol, the relative standard uncertainty of symbols for use "Urel" instead of "u **", the relative expanded uncertainty using a symbol "Urel" instead of "U **";

--- Remove the original International Standard is not in the standard normative references Normative references ISO 9300, and to include a reference literature;

--- Rearrange the order of reference.

The standard proposed by China Machinery Industry Federation.

This standard by the national industrial process measurement and control Standardization Technical Committee (SAC/TC124) centralized.

This standard was drafted. Shanghai Industrial Automation Instrumentation Institute, Naval Air Station instrumental, Shanghai Automation Instrumentation System Inspection Testing, Shanghai Institute of Measurement and Testing, Yuyao Yinhuan flow Instrument Co., Ltd. day letter Instrument Group Co., Ltd., Haiyan Majesty Test Instrument Co., Ltd., Central-day instrument Co., Ltd., Dandong Beit Engineering Automation Instrumentation Co., Ltd., Shanghai West to send Egyptian instrument packages Limited.

1 Scope

This standard describes the determination and assessment of fluid flow or the total measurement uncertainty of the basic principles and procedures.

Appendix A shows the step of calculating uncertainty.

This standard applies to the assessment of the uncertainty of the fluid flow or the total measurement.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

ISO Guide to the Expression of Uncertainty in Measurement (GUM), 1995 (ISO Guidetotheexpressionofuncertaintyinmeasure-ment (GUM), 1995) International Basic and General Terms in Metrology (VIM), 1993 (Internationalvocabularyofbasicandgeneraltermsin metrology (VIM), 1993)

3 Terms and Definitions

ISO Guide to the Expression of Uncertainty in Measurement (GUM, 1995) and the International Basic and General Terms in Metrology (VIM, 1993) defined and the following terms and definitions apply to this document.

Uncertainty and measuring outcomes, given reasonable parameter characterizing the dispersion of the measured values.

NOTE: Uncertainty expressed as an absolute no positive and negative numbers.

Standard uncertainty $u(x)$ Measurement results with standard deviation uncertainty.

Relative standard uncertainty $u_{rel}(x)$ Standard uncertainty divided by the best estimate.

Note 1: $u_{rel}(x) = u(x)/x$.

Note 2: $u_{rel}(x)$ can be expressed as a percentage or parts per million.

Note 3: The relative uncertainty is sometimes referred to dimensionless uncertainty.

Note 4: In most cases, the best estimate is the arithmetic average of the correlation uncertainty interval.

Combined standard uncertainty $u_c(y)$ Standard uncertainty of measurement results obtained from several values of other quantities. It is equal to the positive square root of the sum of these items for