JJF

NATIONAL METROLOGY TECHINICAL SPECIFICATION

OF THE PEOPLE'S REPUBLIC OF CHINA

JJF 1016-2014

The Rules for Drafting Program of Pattern Evaluation of Measuring Instruments

计量器具型式评价大纲编写导则

Issued on: January 23, 2014 **Implemented on: July 23, 2014**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

Table of Contents

The Rules for Drafting Program of Pattern Evaluation of Measuring Instruments

1 Scope

This Rules applies to the drafting of program of pattern evaluation of measuring instruments.

2 References

JJF 1002-2010 The rules for drafting national metrological verification regulation

JJF 1051 Designation and classification code for measuring instrument

JJF 1094 Evaluation of the characteristics of measuring instruments

GB/T 17799.1 Electromagnetic compatibility - Generic standards - Immunity for residential, commercial and light-industrial environments

GB/T 17799.2 Electromagnetic compatibility - Generic standards - Immunity for industrial environments

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

3 Terms and definitions

For the purpose of this Rules, the terms and definitions defined in JJF 1001 “General Terms in Metrology and Their Definitions” and the following apply.

3.1 Single product

A product of only one specification or model.

3.2 Series product

A group of products having the same measurement principle, similar structure (appearance) and satisfying one of the following conditions:

6.4 Introduction

The introduction is not numbered and shall include the following: the rules on which the program is based; extent or situation of using technical standards such as international recommendations, international documents, international standards, national standards, and industry standards. If the program is revised, it shall also include the following: a description of all or part of the other documents replaced by the program; the serial number and name of the program or other documents being replaced; the main technical changes compared to the previous edition; whether it is necessary to re-evaluate or partially evaluate the previously approved pattern of an item; the previous released versions replaced the pattern.

6.5 Scope

The name and classification code shall be given according to JJF 1051. If the measuring instrument may have other names, it shall be listed in detail. If necessary, it shall clearly write out the measuring instruments that are not applicable.

The following typical terms are recommended:

“This program of pattern evaluation is applicable to the pattern evaluation of ×××× with the classification code of ××××.”

6.6 References

The serial number and name of the references shall be listed. The list of references is in the order of: national metrology technical regulations, national standards, international recommendations, international documents, international standards, and industry standards. The above documents are arranged in sequence numbers. Finally, there shall be a note: “NOTE: For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.”

When referencing international recommendations and international documents, the Chinese translated name shall be given after the serial (year) number, and the original name shall be given in the following parentheses.

When the references are referenced below, the way of expression is generally “it shall be in accordance with ×××× (write only serial number, not Chinese name) or it shall be based on ×××× (write only serial number, not Chinese name)”.

6.7 Terms

For the terms used in the program of pattern evaluation, if they not specified in

information of the manufacturer. For measuring instruments of which the accuracy and safety may be affected due to improper installation, there shall be a mark of the installation instructions.

6.9.4 Anti-spoofing measures

If necessary, it shall put forward the requirements for anti-spoofing protective measures in the structural design.

6.9.5 Others

It must meet other requirements related to legal management.

6.10 Measurement requirements

Based JJF 1094 and with reference to national metrology technical specifications, the specific requirements for the metrological performance of measuring instruments are put forward.

The metrological performance generally includes the following: measurement range, accuracy level, maximum allowable error, measurement uncertainty, resolution, sensitivity, response time, repeatability, and stability. It may also include ruler spacing, gauge length, gauge spacing, scale graduation, etc.

6.11 General technical requirements

The relevant technical requirements shall be put forward with reference to the relevant product standards and according to the working conditions and environmental conditions of measuring instruments. The technical requirements shall be such that:

- the metrological performance can remain relatively stable during use;

- the measurement results are reliable, simple and clear;

- deceptive behaviors are eliminated as much as possible.

General technical requirements generally include the following:

6.11.1 Appearance and structure

6.11.1.1 Readability of scale and dial numbers

It shall put forward the content to be displayed by the measuring instrument, the form of display (the number of digits before and after the decimal point, the time of display, etc.), and the size (width, height) of the displayed number.

6.11.1.2 Applicability of instrument support and enclosure

and drop adaptability requirements.

6.11.3.3 Electromagnetic environment (immunity)

For measuring instruments powered by a dedicated low-voltage utility grid, a dedicated DC power source between the low-voltage utility grid and equipment, or a non-commercial non-common low-voltage power distribution system, it shall carry out the electromagnetic compatibility immunity (EMS) test.

In the case of relevant special product or product electromagnetic compatibility immunity standards, it is formulated according to the requirements of its electromagnetic compatibility immunity standard.

In the absence of relevant special product or product electromagnetic compatibility immunity standards, it shall put forward the requirements according to GB/T 17799.1. For measuring instruments that are connected to the industrial grid and working in an industrial environment, it shall put forward the requirements on determining the test strength level according to GB/T 17799.2.

The requirements for electromagnetic compatibility immunity (EMS) are divided into two aspects: the first is the acceptable phenomena of the test results, the second is the strength level of the test.

The acceptable phenomena of the test results are divided into three categories. One of them shall be selected as a phenomenon that can be accepted in the electromagnetic compatibility immunity test of the measuring instrument. The three categories of phenomena are:

a) the performance is normal within the specified limits;

b) the function or performance is temporarily lost or reduced, but can resume after the disturbance ceases without the intervention of the operator, and the data is not lost;

c) the function or performance is temporarily lost or reduced, but it requires the intervention of the operator to resume, and the data is not lost.

NOTE: For the measuring instruments of which the metrological performance cannot be evaluated in an electromagnetic compatibility environment, consideration shall be given to using a simulated method to evaluate the metrological performance or not to evaluate the metrological performance, but only to evaluate the function.

6.11.3.4 Power supply environment

For measuring instruments that are powered by a dedicated low-voltage utility grid, a dedicated DC power source between the low-voltage utility grid and

with different accuracy levels. One to three prototypes are provided for each product.

6.13.2 Way of using a prototype

It shall specify the way of using a prototype. In principle, all test items shall be carried out on the same (or several, if required) prototype, and the prototype shall not be adjusted during the test period and in the test (except those required in the program of pattern evaluation).

It can specify that stability or destructive test items can be carried out on separate prototypes.

6.14 Test methods and conditions of test items and data processing and qualification criteria

The metrological performance test shall be carried out under the reference conditions and rated conditions, respectively. The reference conditions shall be determined and the tests under rated conditions shall be carried out according to the relevant specifications.

The test method for each test item shall be drafted in the following format:

- Test purpose

  This part shall state the purpose of the test, which shall generally be written as “the purpose of the test is to verify whether ×××× meets the requirements of ×××× under the conditions of ××××”.

- Test conditions

  This part shall state the environmental conditions applied to the measuring instrument during the test, including temperature, relative humidity, power source, magnetic field, etc.

- Test equipment

  This part shall provide metrological characteristics and other performance requirements for the measuring instruments and equipment used in the test, which are included in the list in 6.15.

- Test procedure

  The steps of the test are described in the form of a), b), …

- Additional procedure requirements (if necessary)

  This part can describe the additional operations in each step of the test.

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------