

JJF

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

JJF 1576-2016

**Program of pattern evaluation of infrared devices for instant
screening of human skin temperature
(English Translation)**

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1 Scope

This program is applicable to the pattern evaluation of infrared devices for instant screening of human skin temperature (hereinafter referred to as screening instrument). It is also applicable for the quality supervision and inspection of its product.

2 Normative references

The program cited the following documents:

JJF 1015-2014 General norm for pattern evaluation of measuring instruments

JJF 1107-2003 Calibration specification of infrared thermometers for measurement of human temperature

JJF 1187-2008 Calibration specification for thermal imagers

GB 9706.1-2007 Medical electrical equipment - Part 1: General requirements for safety

GB/T 18268-2000 Electrical equipment for measurement, control and laboratory use - EMC requirements

GB/T 19146-2010 Infrared devices for instant screening of human skin temperature

For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

3 Terms and definitions

The terms and definitions defined in JJF 1107-2003 and GB/T 19146-2010 as well as the following terms and definitions apply to this code.

3.1

7.1.4 The function keys of the screening instrument shall have clear marks and instructions.

7.2 Mode

7.2.1

The screening instrument shall have a body temperature mode and indicate the set display mode.

7.2.2

The calibration mode of the screening instrument shall be directly set or obtained through the conversion technique of body temperature mode.

7.3 Alert function

When the display of the screening instrument after measurement reaches or exceeds the alert temperature value, it shall be able to immediately emit alert such as lights, sounds or on-screen instructions.

7.4 Consistency of temperature measurement (applicable to

thermal imaging screening instrument)

The temperature measurement consistency of the screening instrument shall not exceed $\pm 0.2^{\circ}\text{C}$.

7.5.1 Storage and transportation environment

The screening instrument is in a packaged state. It is respectively placed in an environmental test chamber -- temperature is -20°C , relative humidity is less than 50% -- for 7 d; and in an environmental test chamber -- temperature is

50°C, relative humidity is not less than 75%, no condensation -- for 7 d. At the end of each storage period and after returning to room temperature for 2 h, make measurement. The laboratory error of the screening instrument shall meet the requirements of 6.3.

7.5.2 Mechanical environment

The test conditions of the mechanical environment of the screening instrument shall meet the requirements of Table 1. After the test, the laboratory error of the screening instrument shall meet the requirements of 6.3.

9.1 Technical data requirements

The technical information submitted by the applicant shall meet the requirements of Chapter 4 of JJF 1015-2014.

9.2 Number of prototypes submitted

The applicant shall provide a test prototype which shall pass the exit-factory inspection.

For applications based on a single product, in general, the number of test prototypes is 3.

For applications based on a series of products, in general, randomly take 1/3 representative products from the series, meanwhile 3 prototypes are provided for each specification. The representative specifications shall be determined by the technical institution undertaking the test based on the technical documents provided by the applicant.

Generally, the product of different specifications with different optical paths, different types of main components or different technical indicators shall not be divided into the same series.

Under normal circumstances, the prototype will be sent by the applicant itself.

9.3 How to use the prototype

All test items shall be carried out on all prototypes. The prototype shall not be adjusted during the test or during the experiment.

10 Test methods and conditions of test items, data

processing, qualification criteria

10.1 Resolution test

- Test purposes

Check whether the test prototype meets the requirements of 6.1.

If all single measurement results of a single prototype are qualified, then, the temperature

display range of the prototype is qualified; otherwise it is unqualified.

10.3 Laboratory error 1

At the environmental conditions of temperature 24°C ~ 26°C and relative humidity 40% ~ 65%, perform the laboratory error test.

- Test purposes

Check whether the test prototype meets the requirements of 6.3.

- Test conditions

It shall meet the temperature and humidity requirements of Table 2 of GB/T 19146-2010.

- Test equipment

It shall meet the requirements of 6.2.1 in JJF 1107-2003.

- Test procedure

Respectively set the standard blackbody radiation source's temperature at the point of the screening instrument's measuring range's lower-limit +

0.7°C, 33.0°C, 35.6°C, 37.0°C, and the point of the screening instrument's measuring range's higher-limit - 0.7°C.

For each prototype, perform 4 consecutive measurements of the standard blackbody radiation source at each temperature point; the time interval between each measurement remains the same. Record the temperature value displayed by the screening instrument for each measurement.

- Data processing

For each prototype, a single measurement determines the laboratory error:

$e_{i,j} = t_{i,j} - t_{BBi}$, $j = 1, 2, 3, 4$, unit °C.

Where:

t_{BBi} - Standard blackbody radiation source's temperature;

$t_{i,j}$ - The j th temperature indication value when the standard blackbody's temperature t_{BBi} is measured by the screening instrument;

j indicates the order of readings.

period, the standard blackbody radiation source is continuously measured

4 times; the interval between each measurement shall be consistent.