

ICS 17.02
CCS A 61

JJF

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

JJF 1531-2015

**Calibration specification for fourier transform mass
spectrometers**

(English Translation)

Issued on: June 15, 2015

Implemented on: September 15, 2015

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

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Introduction

This specification based on the national measurement specifications JJF 1071-2010 "national measurement standards to prepare rules" JJF 1001-2011 "common measurement terms and definitions" JJF 1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement" prepared by.

Development of this specification primarily with reference to GB/T 6041-2002 "General mass spectrometry method" and other documents.

This specification is the first release.

Fourier transform mass spectrometer calibration specification

1 Scope

This standard applies to the Fourier transform mass spectrometer calibration.

2. References

This specification references the following documents.

GB/T 6041-2002 General Mass Spectrometry for dated references, only the dated edition applies to this specification; undated reference documents Member, the latest edition (including any amendments) applies to this specification.

3 terminology and units of measurement

3.1 Terms

3.1.1 Sensitivity [GB/T 6041-2002.2] Under specified conditions, the response to the value of a mass peak, the instrument unit generated by the sample.

3.1.2 The ability to distinguish resolution in a given sample conditions, instrument two adjacent mass peaks discriminatory power. Two adjacent high-mass spectrometry when the peak, the peak is not more than 10% of the peak height, it is defined as can be distinguished.

Note: The ability to distinguish two peaks of representation when R peak at 10% peak height, the quality of the two peaks represented by the average value of quality the ratio of the amount of the difference. When describing the use of mass spectral peak mass to charge ratio, listed in the corresponding resolution of the data is appropriate, because Different instruments, while its resolving power varies with different mass to charge ratio.

3.1.3 SNR signaltonoiseratio [GB/T 6041-2002.9] in mass spectrometry, the signal strength and noise intensity ratio.

3.2 units of measurement Atomic mass units (u) atomicmassunit [JJF 1164-2006.6]

4 Overview

4.1 Fundamentals

Fourier transform mass spectrometer according to different mass analyzers are divided into two categories. Fourier transform ion cyclotron resonance mass spectrometry Fourier transform instrument and Orbitrap mass spectrometer.

Fourier transform ion cyclotron resonance mass spectrometer is a core component in a high magnetic field of the ion cyclotron resonance trap (ICRiontrap) --- analysis room, which can capture and store ions in a high magnetic field. The basic principle is to leave Ion source produces an ion beam is introduced ICR ion trap under the action of magnetic force, all the ions are beginning along well Center to do a small radius of cyclotron motion. If the magnetic field strength B is fixed, and only the cyclotron frequency of the ion mass to charge ratio have and independent of the customs and ion kinetic energy. When the frequency of the high frequency signal is applied and the frequency of a mass to charge ratio of ions in a cyclotron motion when delivered, the ions will absorb the energy of a high-frequency electrical signals, the cyclotron radius of motion increases. When stopping the high-frequency excitation