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

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**Calibration Specification for Ultrasound Bone Sonometers
(English Translation)**

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Introduction

This specification is based on JJF 1071-2010 "Rules for the preparation of national measurement calibration rules" and JJF 1059.1-2012 the formulation of rules and formats given in Assessment and Expression of Measurement Uncertainty.

This specification mainly refers to the YY 0774-2010 "ultrasonic bone density meter", YY/T 0939-2014 "ultrasonic bone Densitometer Broadband Ultrasound Attenuation (BUA) Test Method." this specification is the first release.

Ultrasound Bone Densitometer Calibration Specification

1 Scope

This specification applies to the calibration of acoustic parameters of tibial and calcaneus-type ultrasound bone densitometers.

2 references

This specification refers to the following documents.

JJF 1001-2011 Universal Measurement Terms and Definitions JJF 1034-2005 Acoustic Measurement Terms Terms and Definitions GB 3102.7-1993 Acoustic quantities and units GB/T 3947-1996 Acoustic terms YY0774-2010 Ultrasound Bone Densitometer YY/T 0939-2014 Ultrasound Bone Densitometer Broadband Ultrasound Attenuation (BUA) Test Method for dated references, only dated editions apply to this specification; all undated references the latest version (including all amendments) applies to this specification.

3 Terms and units of measure the definitions of JJF 1001-2011, JJF 1034-2005, YY0774-2010 and GB/T 3947-1996 the following terms and definitions apply to this specification.

This specification uses the amount and unit specified in GB 3102.7-1993.

3.1 Bone mineral density Mineral density in bone (abbreviated as bone density), which is the volume of mineral in a unit volume of bone.

Symbol. ρ_{b} , unit. mg/cm^3 [YY0774-2010, Definition 3.1]

3.2 Sound speed speed of sound the speed at which sound waves travel in the medium.

Symbol. c , unit. m/s [GB/T 3947-1996, definition 2.17]

3.3 Broadband Ultrasound Attenuation (BUA) in a wider frequency band, the ultrasonic attenuation of the ultrasonic wave through the medium is related to the slope of the frequency.

Symbol. BUA, Unit. dB/MHz [YY0774-2010 Definition 3.4]

4 Overview

The ultrasonic bone densitometer is based on the speed of ultrasound propagation in bone tissue and the degree of broadband ultrasound attenuation.

Non-invasive and non-radioactive medical measuring instruments for measuring physiological parameters such as bone density and bone strength.