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

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**Measurement techniques of piezoelectric, dielectric and
electrostatic oscillators - Part 2: Phase jitter measurement
method**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 2 of GB/T 43024 "Measurement Technology of Piezoelectric, Dielectric and Electrostatic Oscillators". GB/T 43024 has been released

The following sections are included.

---Part 2. Phase jitter measurement method.

This document is equivalent to IEC 62884-2:2017 "Measurement techniques for piezoelectric, dielectric and electrostatic oscillators Part 2.Phase jitter measurement"

Quantitative Methods".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

As a high-precision oscillation frequency source, crystal oscillator is widely used in electronic equipment, communication systems, measurement equipment and clock fields.

Recently, the digitization of electronic systems has developed rapidly. In this situation, the frequency of the crystal oscillator requires better accuracy and stability.

Swing noise also needs to be further reduced. Phase jitter is one of the oscillator noise characteristics, which needs to be accurately measured before product delivery.

Measurement.

In the latest application fields of electronic information and communication engineering (such as advanced satellite communications and electric vehicle control circuits), universal phase jitter

Guidelines on dynamic measurement methods are even more necessary. At present, from the perspective of electromagnetic interference (EMI), the measurement method of phase jitter has become more and more important.

wanted.

GB/T 43024 "Measurement Technology of Piezoelectric, Dielectric and Electrostatic Oscillators" aims to provide measurement and test methods for piezoelectric, dielectric and electrostatic oscillators.

The test method is intended to consist of the following parts.

---Part 1.Basic measurement methods. The purpose is to give the basic measurement methods of oscillators, including test conditions, appearance and dimensions

Procedures for inspection, basic electrical performance testing, mechanical and environmental testing.

---Part 2.Phase jitter measurement method. The purpose is to give a method of phase jitter measurement to accurately measure the root mean square

Jitter.

---Part 3.Test methods for frequency aging. The purpose is to provide aging test methods and provide information for prediction of frequency aging data.

in accordance with.

---Part 4. Test methods for short-term frequency stability. The purpose is to standardize the testing and evaluation methods of short-term frequency stability.

Measurement techniques for piezoelectric, dielectric and electrostatic oscillators

Part 2. Phase Jitter Measurement Methods

1 Scope

This document describes piezoelectric, dielectric and electrostatic oscillators, including oscillators using dielectric resonators (DRO) and those using thin film bulk acoustic waves.

Phase jitter measurement method for oscillators of resonators (FBAR), giving guidance on phase jitter measurements to accurately measure the root mean square

Jitter.

This measurement method uses phase noise measurement equipment or phase noise measurement system.

Note 1. Measurements of dielectric oscillators (DRO) and FBAR oscillators are under consideration.

Note 2. In the absence of confusion, "piezoelectric, dielectric and electrostatic oscillators" in this document are simply referred to as "oscillators".

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

ISO 80000-1 Quantities and units Part 1. General (Quantities and units-Part 1. General)

IEC 60050-561 International Electrotechnical Vocabulary Part 561. Piezoelectric, dielectric and electrostatic devices and phases for frequency control, selection and detection

IEC 60679-1.2017 Qualified piezoelectric, dielectric and electrostatic oscillators Part 1. General specification (Piezoelectric, die-

Note. GB/T 12274.1-2012 Quartz crystal oscillators with quality assessment Part 1. General specifications (IEC 60679-1.2007, MOD)

IEC 60469 Transformation terms, definitions and algorithms for pulses and related waveforms (Transitions, pulses and related

Note. GB/T 4728 Graphical symbols for electrical diagrams (IEC 60617 database, IDT)

IEC 62884-1.2017 Measurement techniques for piezoelectric, dielectric and electrostatic oscillators Part 1. Basic measurement methods

3 Terms and definitions

IEC 60027 (all parts), IEC 60050-561, IEC 60469, IEC 60617, IEC 60679-1.2017 and ISO 80000-1

Defined terms and definitions apply to this document.

The database of standardized terminology used by ISO and IEC can be consulted at.