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JJF

NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1901-2021

Calibration Specification for Analog Clocks

指针式精密时钟校准规范

(English Translation)

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9 Re-calibration interval (6)

Appendix A. Format of the inner page of the original record (7)

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Appendix C Example of Uncertainty Evaluation of Calibration Results (10)

Introduction

This specification is based on JJF 1071-2010 "Rules for the Compilation of National Metrology and Calibration Specifications", JJF 1001-2011 "Tong Compiled with Metrological

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Terms and Definitions, JJF 1059.1-2012 "Evaluation and Expression of Measurement Uncertainty".

This specification is a revision of JJG106-1981 "Analog Precision Clock". Except for editorial changes, the main technical the technical changes are as follows.

---The scope of application is changed from the original one, which is suitable for analog precision quartz clocks or machinery with a travel time accuracy not higher than 0.03s the marine chronometer is modified to be suitable for analog quartz clocks, analog quartz watches, and satellite timing analog precision stones.

Calibration of British clocks and analog precision quartz watches;

---Added metering characteristics;

---Added the calibration item voltage coefficient, current synchronization error, loss-of-lock reacquisition time and corresponding calibration method.

The release status of previous versions of this specification.

---JJG106-1981.

Analogue precision clock calibration specification

1 Scope

This specification applies to analog quartz clocks with quartz resonators, analog quartz watches, and satellite timing pointers Calibration of precision quartz clocks and analog precision quartz watches.

2 Reference documents the following documents are cited in this specification.

JJG237-2010 stopwatch JJG488-2018 instantaneous daily error measuring instrument JJG2007-2015 Time and Frequency Measuring Instruments JJF 1403-2013 Global Navigation Satellite System (GNSS) Receiver (Time Measurement Type) Calibration Specification GB/T 6046-2016 Analog quartz clock for dated reference documents, only the dated version applies to this specification; for all undated references the latest version (including all amendments) is applicable to this specification.

3 Term

3.1 Voltage coefficient the power supply voltage of the quartz clock is reduced from the full-scale power supply voltage to 0.9 times the full-scale power supply voltage, which is converted to every change in voltage the amount of change in the instantaneous daily difference of the quartz clock caused by 1V.

4 overview

The analog precision clock is a chronograph with a traditional analog dial surface, including a daily difference of ±(0.03~ 0.5) s range analog quartz clock and analog quartz watch and

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satellite time service type analog precision quartz clock and pointer Style precision quartz watch.

Analog quartz clocks and analog quartz watches use a quartz resonator as an oscillator, and the frequency is generally 32768Hz, the motor is controlled by the electronic frequency divider to drive the pointer. Quartz watches are mainly composed of quartz resonators, CMOS integrated circuit, stepper motor, power supply, in addition to conductive rubber, fine-tuning capacitors, lighting bulbs, Buzzer and other components.

Satellite time service type analog precision quartz clock and analog precision quartz watch receive satellite signals for time synchronization, it is composed of GNSS receiving module, local synchronization calibration unit, error measurement unit, error processing and control structure.

5 Metrological characteristics

5.1 Daily difference ±(0.03~0.5)s.

5.2 Voltage coefficient

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