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**INDUSTRY STANDARD OF THE
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JJF 1471-2024

**Calibration Specification for GNSS Signal Simulators
(English Translation)**

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Introduction

JJF 1001-2011 "General metrological terms and definitions", JJF 1071-2010 "National metrological calibration specifications" the JJF 1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement" together constitute the basis for the revision of this specification.

Series specifications.

This specification is a revision of JJF 1471-2014 "Specification for Calibration of Global Navigation Satellite System (GNSS) Signal Simulators" in addition to the editorial changes, the main revisions are as follows.

- Added calibration of Beidou RDSS signal simulator and Beidou RDSS inbound receiver;
- Added calibration of simulator pseudorange error and pseudorange rate error;
- Added universal counter calibration method for simulator dynamic range and pseudorange rate resolution;
- Added the measurement method of the two-way equipment delay measurement error of the RDSS inbound receiver;
- Supplemented some references, terms and units of measurement.

The previous versions of this specification are as follows.

- JJF 1471-2014.

Global Navigation Satellite System (GNSS) Signal Simulator Calibration Specifications

1 Scope

This specification applies to global navigation satellite system (GNSS) signal simulators (including Beidou RDSS signal simulators Calibration of the instrument).

2 References

This specification references the following documents.

JJF 1001 General metrological terms and definitions JJF 1180 Time and frequency measurement terms and definitions JJF 1403 Global Navigation Satellite System (GNSS) Receiver (Time Measurement Type) Calibration Specification GB/T 19391 Global Positioning System (GPS) Terms and Definitions GB/T 39267-2020 Beidou Satellite Navigation Terminology GB/T 39413-2020 Beidou satellite navigation system signal simulator performance requirements and test methods BD420007 Beidou user terminal RDSS unit performance requirements and test methods for any referenced document with a date, only the version with the date is applicable to this specification; for any referenced

document without a date, the latest version (including all amendments) shall apply to this specification.

3 Terminology

3.1 Jerk

The time rate of change of acceleration.

3.2 Internal Channel Delay the signal delay introduced by the channel characteristics of the simulator's internal channel.

The user receives the navigation signal forwarded by the master control station via a high-orbit satellite (GEO), and responds to it through the GEO satellite.

The satellite forwards the information to the master control station to complete the distance measurement, and the user position and time parameters are calculated by the navigation system of the master control station.

3.4 RDSSoutbound signal in the Beidou Satellite Navigation System RDSS service, the radio signal is transmitted by the master control station and forwarded to the user via the satellite.

3.5 RDSSinbound signal in the Beidou Satellite Navigation System RDSS service, the radio signal is transmitted by the user and forwarded to the master control station via the satellite.

3.6 RDSS two-way time delay of device GNSS signal simulator (hereinafter referred to as simulator) is a GNSS system signal generator used to simulate the generation of special