

ICS 49.140
CCS M 50



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

GB/T 47812-2026

**Requirements for global navigation satellite system (GNSS)
positioning augmentation centers**

全球卫星导航系统（GNSS）定位增强中心要求
(English Translation)

Issued on: July 2, 2026

Implemented on: November 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative References	
3 Terms and Definitions	
3.1 Space-based Positioning and Navigation	
3.2 Positioning Quality	
3.3 Earth Reference Frame	
3.5 Network Security	
4 Abbreviations	6.
5 System General Rules	
6 Domain of discourse	
6.1 General Rules	
6.2 User Scope	
6.3 Service Types	
6.4 Service Area	
6.5 Service Hours	
6.6 Organizers	
7 Enhanced service requirements	9.
7.1 General Rules	
7.2 Standard Enhanced Services	
7.3 Enhanced Precision Services	
7.4 Geodetic Surveying Services	
7.5 Performance factor	
7.6 Integrity Information	
8 Verification Requirements	
8.1 Overview	
8.3 Verification	
8.4 Calibration	
8.5 Evaluation cycle	
8.6 Convergence time	
8.7 Quality Control Item	

9 Maintenance Requirements

9.1 Overview

9.2 Continuous Performance Monitoring

9.3 Network Security

9.4 User Service

Appendix A (Informative) Cross-border Data Exchange

Appendix B (Informative) GNSS Constellations and Systems

Appendix C (Informative) Enhanced Data Transmission

C.1 Standard Enhanced Service

C.2 Precision Enhancement Service

C.3 Geodetic Surveying Services

Appendix D (Informative) Position Reference for Precision Navigation

D.1 Overview

D.2 Earth Reference Frame

D.4 National Coordinate Reference System

D.5 Coordinate Reference System Transformation and Crustal Movement

D.6 No national coordinate reference system at the work site

D.7 Reference Ellipsoid

Appendix E (Informative) Beacon Spoofing in Radio Navigation

Appendix F (Informative) Location Quality Assessment Methods

References

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 equivalent to ISO 24246:2022 "Space Systems - Requirements for Positioning Augmentation Centers of Global Navigation Satellite Systems (GNSS)".

The following minimal editorial changes have been made to this document.

---To harmonize with existing standards, the standard's name has been changed to "Requirements for Global Navigation Satellite System (GNSS) Positioning Augmentation Centers";

---Corrected the English equivalent of the abbreviation GNSS, and added the abbreviations PPP-RTK and URE (see Chapter 4);

---Added a note on "Service Area" (see 6.4);

---Added a note on "Service Hours" (see 6.5);

---Due to an error in the original ISO standard, "6.3" in the first paragraph has been corrected to "6.4" (see 7.3), and "6.3" in both the first and second paragraphs has been corrected to "6.4".

(See 7.4) In the second paragraph, "3.2.2" should be "3.2.3" (see 8.2);

---Added a note on "Earth reference frame" (see D.2).

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Aerospace Technology and Its Applications (SAC/TC425).

Introduction

Global Navigation Satellite System (GNSS) is an internationally recognized advanced space-based positioning, navigation, and timing infrastructure with wide applications.

Widely used. my country's independently developed and operated BeiDou Navigation Satellite System is one of the four internationally recognized global satellite navigation systems and is widely used.

It is applied to numerous industries and fields related to my country's national defense security, national economy, and social development, contributing to national security, economic development, industrial upgrading, and...

It has made significant contributions to improving the quality of life for the general public. To further improve the positioning accuracy, integrity, and usability of GNSS, both domestically and internationally...

This is followed by the generation of orbital corrections, clock corrections, ionospheric corrections, regional differential data, and millimeter-level post-processing data for GNSS navigation satellites.

Based on data products, and through ground-based or space-based systems, it provides users with high-precision services, meeting meter-level and decimeter-level accuracy requirements over a wide area within the service range.

The need for real-time positioning and navigation at the centimeter level and regional level, as well as the need for post-processing static positioning services at the millimeter level.

ISO TC20/SC14/WG1, in accordance with the "2015 Business Plan of ISO TC20 Technical Committee", discussed the standards for space-based services.

Regarding standardization issues, we cooperate with TC20/SC13, other ISO TCs, IEC TCs, and other international organizations on relevant standards in the GNSS field.

The two sides are mutually coordinated, and their relationship is shown in Figure 1.

Figure 1. Standardization of Space-Based Services (GNSS-Related Fields)

Global Navigation Satellite System (GNSS) Positioning Enhancement Center Requirements

1 Scope

This document specifies the requirements for Global Navigation Satellite System (GNSS) positioning augmentation centers, which are responsible for distributing correction data for civilian use.

Provide users in the consumer and commercial markets with more accurate and complete technical information.

The GNSS Positioning Augmentation Center covers the following positioning service types.

- a) Real-time sub-meter to decimeter-level positioning;
- b) Real-time centimeter-level positioning;
- c) Post-processing geodetic positioning.

This document also clarifies the responsibilities of the following stakeholders and the various functions of the GNSS positioning augmentation center software.

---The responsibilities of a planner;

---The designer's responsibilities;

---Software functionality.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

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

This document.

ISO 19161-1:2020 Geographic information geodesy reference-Part 1: International Earth reference system umel-RadioNavigationAids) the following terms and definitions apply to this document.

3.1 Space-based positioning and navigation

3.1.1

Radio measurement