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GB/T 46458-2025

**Requirements and test methods for performance of navigation
antenna for BeiDou navigation satellite system**

北斗卫星导航系统导航型天线性能要求及测试方法

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Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions, Abbreviations	1
3.1 Terms and Definitions	1
3.2 Abbreviations	3
4.1 Classification	3
4.2 Composition	3
5 Requirements	3
5.1 Antenna Performance	3
5.2 Low-noise amplifier performance	4
5.3 Environmental adaptability	5
5.4 Electromagnetic Compatibility	5
6.2 Antenna Performance	8
6.3 Low-noise amplifier performance	19
6.4 Environmental adaptability	23
6.5 Electromagnetic compatibility	24
27 Appendix B (Informative) Multi-probe spherical near-field testing 28 B.1 Test Instructions 28 B.2 Test System 28 B.3 Test Flowchart 28 B.4 Test Step 29 B.5 Data Processing	29

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. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the Ministry of Industry and Information Technology of the People's Republic of China. This document was drafted by: Jiaxing Jiali Electronics Co., Ltd., Shenzhen Huaxin Antenna Technology Co., Ltd., and China Electronics Technology Group Corporation. The 36th Research Institute and Guilin University of Electronic Technology. The main drafters of this document are. Xu Guangcheng, Ge Weiping, Zhang Jie, Zhao Danhua, Sun Xiyan, Luo Jianfeng, Wang Xiaohui, Zhang Guangsheng, and Ji Yuanfa. Pan Jiexia. Beidou Satellite Navigation System Navigation Antenna Performance

Requirements and Test Methods

1 Scope

GB/T 46458-2025 is the Chinese national standard covering the ordinary navigation antenna as opposed to the survey grade one - the gain pattern and axial ratio across the BeiDou bands, the noise figure of the integrated amplifier, the out-of-band rejection, and the environmental and durability tests. At 21,500 words. First edition, under the Ministry of Industry and Information Technology, with the geodetic antenna standard GB/T 46368-2025. In force from 1 February 2026. Issued on 5 October 2025, it has been in force since 1 February 2026.

This document specifies the performance requirements for navigation antennas of the BeiDou Navigation Satellite System and describes the corresponding test methods. This document applies to the design, production, use, and testing of navigation antennas for the BeiDou Navigation Satellite System (hereinafter referred to as "navigation antennas").

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.

GB/T 2423.1 Environmental testing of electronic and electrical products - Part

3.1 Terms and Definitions The terms and definitions defined in

GB/T 9390 and the following terms and definitions apply to this document.

3.1.1 With the antenna phase center as the origin of the coordinate system and the antenna axis as the Z-axis, in a plane passing through the origin and perpendicular to the Z-axis, select a certain direction. The direction is taken as the antenna reference direction, with this direction as the X-axis, and the axis passing through the origin and perpendicular to both the Z-axis and X-axis as the Y-axis. The X, Y, and Z axes form the Right-handed coordinate system.

Note. Antenna coordinates often use spherical coordinates. The angle between the projection of the line connecting any point P on the sphere and the origin O onto the XOY plane and the X-axis is ϕ . The angle between OP and the Z-axis is the antenna pointing angle θ , and the angle between OP and the XOY plane is the antenna elevation angle. θ and the antenna elevation angle are complementary angles, as shown in Figure 1.