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GB/T 44599-2024

Testing method for antenna measurement fields

天线测量场地检测方法

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Standardization Administration of the PRC

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1.Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China. This document is under the jurisdiction of the National Communications Standardization Technical Committee (SAC/TC485). This document was drafted by: China Academy of Information and Communications Technology, China Mobile Communications Group Co., Ltd., China Communications Standards Association, China Telecommunications Standards Association, China Unicom Group Co., Ltd., Comba Telecom Technology (Guangzhou) Co., Ltd., Huawei Technologies Co., Ltd., China Information and Communications Technology Group Co., Ltd., Jiangsu Hengxin Technology Co., Ltd., and Foshan Yue Haixin Communications Co., Ltd. The main drafters of this document are. Wu Xiang, Zhao Jie, Han Dong, Sun Shanqiu, He Juntao, Shi Meng, Zhang Yu, Zhang Tao, Li Yanfen, Hua Yanping and Zheng Hongzhen. Antenna measurement site detection method

1 Scope

GB/T 44599-2024 sets out how to qualify the site on which antennas are measured. Every antenna pattern, gain and polarisation figure ever quoted is really a statement about the

antenna plus the range it was measured on, and a range that reflects, that is not far enough away for the far-field condition, or whose quiet zone is not as quiet as claimed will produce results that are repeatable and wrong. The standard covers the three kinds of range in turn. It sets the requirements for far-field measurement sites, near-field measurement sites and compact ranges, and then the detection methods by which each is verified against those requirements, with informative annexes describing the free-space voltage standing wave ratio method and the extrapolation method for assessing a range. It takes effect on 1 January 2025.

This document specifies the inspection requirements for different types of antenna measurement sites and describes the inspection methods for antenna measurement sites. This document is applicable to the detection of antenna measurement sites with an operating frequency band of 400MHz~6000MHz. Antenna measurement in other frequency bands The site inspection can be used as a reference.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 12190 Measurement method of shielding effectiveness of electromagnetic shielding room YD/T 2866 Indoor distributed passive antennas for mobile communication systems YD/T 2867 Multi-band base station passive antenna for mobile communication system YD/T 2868 Passive antenna measurement methods for mobile communication systems

3 Terms and definitions

The terms and definitions defined in YD/T 2866, YD/T 2867, YD/T 2868 and the following terms and definitions apply to this document.

3.1 The inner surface is equipped with an electromagnetic wave shield and wave absorbing materials to reduce microwave reflection, stray and interference signals to an acceptable level within a certain frequency range. The antenna test environment is a quasi-free space environment with a high degree of tolerance and is specially designed for testing.

3.2 Quiet Zone In the microwave darkroom, the reflection of electromagnetic waves is controlled to the designed level of radio wave quiet area.

3.3 Reflectivity level The ratio of the equivalent reflected signal to the direct signal in the quiet zone of a microwave darkroom.

Note. Usually expressed in decibel (dB).

3.4 The ripple fluctuation of the receiving level caused by the reflection in the darkroom on the test aperture plane perpendicular to the direct wave direction in the radio wave quiet area.

Note. There are two cases. horizontal polarization level and vertical polarization level.

3.5 In the radio wave quiet area, on the test aperture plane perpendicular to the direct wave direction, the actual radiation pattern of the transmitting horn leaves the aiming axis angle. The level reduction acts on a limited test transmit and receive distance and causes a gradual decrease in the receive level.