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

GB/T 42968.5-2025

**Integrated circuits - Measurement of electromagnetic immunity
- Part 5: Workbench Faraday cage method**

集成电路 电磁抗扰度测量 第5部分：工作台法拉第笼法

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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 Part 5 of GB/T 42968 "Measurement of Electromagnetic Immunity of Integrated Circuits". GB/T 42968 has the following published... part.

1.General Conditions and Definitions;

---Part 2: TEM Cell and Broadband TEM Cell Methods for Measuring Radiation Immunity;

3.High Current Injection (BCI) Method;

4.Direct Radio Frequency Power Injection Method;

5.Faraday Cage Method for Workbench;

8.Radiated Immunity Measurement - IC Stripline Method;

9.Surface scanning method for measuring radiation immunity. 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 by the Ministry of Industry and Information Technology of the People's Republic of China. This document is under the jurisdiction of the National Integrated Circuit Standardization Technical Committee (SAC/TC599). This document was drafted by: China Electronics Technology Standardization Institute, Tianjin Advanced Technology Research Institute, and Beijing Zhixin Microelectronics Technology Co., Ltd. Company, the Fifth Research Institute of Electronics of the Ministry of Industry and Information Technology, Xiamen Hainoda Scientific Instruments Co., Ltd., Sun Yat-sen University, Guangzhou Chengzhen Electronic Technology Co., Ltd. Limited Liability Company, East China Normal University, Beijing National New Energy Vehicle Technology Innovation Center Co., Ltd., China Automotive Engineering Research Institute Co., Ltd. Company, China Academy of Information and Communications Technology, Chongqing University of Posts and Telecommunications, China Jiliang University, Center for Space Application Engineering and Technology, Chinese Academy of Sciences, China Cooperation National Accreditation Center for Quality Assurance, Dongguan Vocational and Technical College, Beijing Xinghe Yihai Technology Co., Ltd., Xi'an Youlai Test Technology Co., Ltd., and Weikai Testing Technology Co., Ltd., China Household Electric Appliance Research Institute (Beijing) Testing and Certification Co., Ltd. The main drafters of this document are. Cui Qiang, Sun Meiqiu, Lian Pengfei, Wu Jianfei, Fang Wenxiao, Shao E, Fu Jun, Zhao Yang, Liang Jiming, Li Nan, and Li Qi. Tan Zeqiang, Guan Duanduan, Wang Ziren, Zhang Hongsheng, Li Yan, Sun Li, Liu Jia, Zheng Xiaodong, Xiong Weijie, Liu Yiyong, Zheng Shangshang, Li Ziqiu.

To standardize electromagnetic immunity measurement for integrated circuits, and to provide different electromagnetic immunity measurement methods for integrated circuit manufacturers and testing institutions. Methods, GB/T 42968 "Measurement of Electromagnetic Immunity of Integrated Circuits" specifies the general conditions, definitions, and procedures for measuring the electromagnetic immunity of integrated circuits. The test procedures and requirements for different measurement methods are proposed to consist of 7 parts.

1.General Conditions and Definitions. The purpose is to specify the general conditions and definitions for measuring the electromagnetic immunity of integrated circuits.

2.Measurement of Radiation Immunity using TEM Cells and Broadband TEM Cells. The aim is to define the TEM cell and broadband TEM cell methods. Test procedures and requirements for the TEM chamber method.

3.High Current Injection (BCI) Method. The purpose is to specify the test procedures and requirements for the high current injection method.

4.Direct Radio Frequency Power Injection Method. The purpose is to specify the test procedures and requirements for the direct radio frequency power injection method.

1 Scope

GB/T 42968.5-2025 is the Chinese national standard covering the immunity of a chip measured inside a small Faraday cage on the bench - the counterpart of the emissions method, isolating the device so the result is about the silicon and not about everything around it. Part 5 of the series, first edition. It was issued on 2 December 2025 and has been in force since 2 December 2025, as a first edition. The document is under the responsibility of the Ministry of Industry and Information Technology. This page is published from the official record of the 2025 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes an integrated circuit for quantifying mounted on a standard test board or its final application on a printed circuit board (PCB). (IC) Method for measuring radio frequency immunity to electromagnetic conducted disturbances. This document applies to ICs that can perform "standalone" functions and are used on small physical test boards.

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 2900.74 Electrical Engineering Terminology - Circuit Theory

GB/T 4365 Electromagnetic Compatibility (Electrical Engineering Terminology)

GB/T 17626.6 Electromagnetic compatibility testing and measurement techniques - Conducted disturbance immunity induced by radio frequency fields

GB/T 42968.1 Measurement of electromagnetic immunity of integrated circuits - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 42968.1, GB/T 2900.74 and GB/T 4365, as well as the following terms and definitions, apply to this document.

3.1 common-mode point A node on a circuit or PCB, where one point serves as a signal terminal and the second terminal serves as a signal reference (forming a two-terminal pair). Example. Using the bottom of the Faraday cage of the workbench as an external reference, the ground reference plane (Vss plane) at the edge of the PCB is considered a common-mode point.

3.2 common-mode port A virtual node for a circuit or connector port, where the signal is the vector sum (package) of all signals at that port relative to a reference port. (including land). Example. The bottom of the Faraday cage at the workbench is considered an external reference. At the common-mode port of a multi-line system, this node can be established using a passive summing network.

Note. For shielded (multi-wire) cables, the cable's shield layer serves as the common-mode port terminal. In this case, the common-mode point is the cable's shield layer.

4 General Rules

4.1 Measurement Principle The workbench method originates from GB/T 17626.6. The method described in this document assumes that both the power cable and signal cable are electrically small in size. The test boards are connected, and the cable length is no greater than $\lambda/2$, for example, 0.15m for 1GHz. These connecting cables become the main antennas, inducing radiation. Radio frequency (RF) interference is injected into the test board through these "antennas".