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

GB/T 42968.1-2023

**Integrated circuits - Measurement of electromagnetic immunity
- Part 1: General conditions and definitions**

集成电路 电磁抗扰度测量 第1部分：通用条件和定义

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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 1 of GB/T 42968 "Measurement of Electromagnetic Immunity of Integrated Circuits". GB/T 42968 has released the following part.

1. General conditions and definitions;

8. Radiated immunity measurement IC stripline method. This document is equivalent to IEC 62132-1.2015 "Measurement of electromagnetic immunity of integrated circuits Part

1. General conditions and definitions". This document has made the following minimal editorial changes.

---The documents IEC 62132-2, IEC 62132-5, IEC 62132-8, IEC /T S62132-9 cited only in the informative appendix are Chapter

2 Go to References;

---Replaced the informative reference IEC 62132-8 with GB/T 42968.8. Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is 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 Semiconductor Device Standardization Technical Committee (SAC/TC78). This document was drafted by: China Electronics Technology Standardization Institute, Beijing Zhixin Microelectronics Technology Co., Ltd., Zhejiang Nuoyi Technology Co., Ltd. The company, the Fifth Research Institute of Electronics of the Ministry of Industry and Information Technology, Tianjin Advanced Technology Research Institute, Guangzhou Chengzhen Electronic Technology Co., Ltd., Yangxin Technology (Shenzhen) Co., Ltd., Beijing Radio Measurement and Testing Research Institute, Shanghai Measurement and Testing Technology Research Institute, China Household Electrical Appliances Research Institute, Henan Kairui Vehicle Inspection and Certification Center Co., Ltd., Southeast University, Shenzhen Beida Standard Technical Services Co., Ltd., China Automotive Engineering Research Institute Co., Ltd., Beijing Xinkejian Technology Co., Ltd., Nanjing University of Information Science and Technology, China Academy of Information and Communications Technology, China National Conformity Assessment Center Accreditation Center, Xiamen Hainuoda Scientific Instrument Co., Ltd., Suzhou Taisite Electronic Technology Co., Ltd., Zhengzhou Xinjiye Automotive Electronics Co., Ltd. Department, Beijing University of Posts and Telecommunications, Nanjing Rongxiang Testing Equipment Co., Ltd., Shanghai Electrical Equipment Testing Institute Co., Ltd., China Electronics Technology Group Corporation Research Institute 32. The main drafters of this document. Cui Qiang, Fu Jun, Qiao Yanbin, Zheng Yimin, Fang Wenxiao, Wu Jianfei, Ye Chang, Li Nan, Zhu Sai, Yang Hongbo, Liu Xingxun, Li Jinlong, Zhang Yanyan, Bai Yun, Zhou Xiang, Liu Xiaojun, Huang Xuemei, Chen Yanning, Shao E, Wan Fayu, Zang Qi, Liu Jia, Liang Jiming, Hu Xiaojun, Guo Wenming, Zhang Jinling, Xing Liwen, Zhang Qingqing,

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

- 1.General conditions and definitions. The purpose is to specify general conditions and definitions for electromagnetic immunity measurements of integrated circuits.
- 2.Radiated immunity measurement TEM chamber and broadband TEM chamber methods. The purpose is to specify TEM cells and broadband Test procedures and test requirements for TEM chamber method.
- 3.Large current injection (BCI) method. The purpose is to specify the test procedures and test requirements for the large current injection method.
- 4.Radio frequency power direct injection method. The purpose is to specify the test procedures and test requirements for the direct injection method of radio frequency power.
- 5.Bench Faraday cage method. The purpose is to specify the test procedures and test requirements for the bench Faraday cage method.

1 Scope

GB/T 42968.1-2023 is Part 1 of the Chinese series on measuring the electromagnetic immunity of integrated circuits. EMC is normally tested on a finished product, at which point a failure means redesigning a board that is already laid out; measuring immunity at the chip level moves the discovery years earlier and lets a designer choose between parts, which is why the automotive industry in particular demands chip-level immunity data. Part 1 sets the common ground for the methods that follow. It defines the terms, the test conditions covering the environment, the test generator and the frequency range, the test equipment including the shielding, the generators and power amplifiers, the test layout with its test board and pin selection options, and the reporting of the results. It took effect on 1 January 2024.

This document defines general information for electromagnetic immunity measurements of conducted and radiated disturbances on integrated circuits (ICs) and describes conventional test conditions. parts, test equipment and layout, test procedures and test report content. A comparison table of test methods is given in Appendix A to help select the appropriate Measurement methods.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document. IEC 62132-

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 amplitude modulation;AM The process in which the carrier amplitude changes according to a given rule. [Source: IEC 60050-314.2001,314-08-01, with modifications]

3.2 Artificial networkartificialnetwork;AN A reference load specified to simulate the impedance presented by the actual network to the device under test (DUT) is connected across it to measure the radio frequency disturbance current. voltage, which can isolate the equipment from the power supply or load within the specified frequency range. NOTE. Actual network, such as extended power lines or communications lines.

3.3 associatedequipment Connected to a measurement receiver or test generator to establish interference or interference between the DUT and the measurement equipment or (test) signal generator Signal transmission path to the sensor. Examples. Probes, Networks and Antennas.