

ICS 31.200
CCS L 56



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

GB/T 42968.9-2025

**Integrated circuits - Measurement of electromagnetic immunity
- Part 9: Measurement of radiated immunity - Surface scan
method**

集成电路 电磁抗扰度测量 第9部分：辐射抗扰度测量 表面扫描法
(English Translation)

Issued on: December 2, 2025

Implemented on: December 2, 2025

Issued by: State Administration for Market Regulation

Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms, Definitions, and Abbreviations
3.1 Terms and Definitions
3.2 Abbreviations
4 General Rules
5 Test conditions
5.1 General Rules
5.2 Power Supply Voltage
5.3 Frequency Range
6 Test equipment
6.1 General Rules
6.2 Shielding
6.3 RF Interference Generator
6.4 Cables
6.5 Near-field probe
6.6 Probe Positioning and Data Acquisition System
6.7 DUT Monitor
7 Test Setup
7.1 General Rules
7.2 Test Configuration
7.3 Test Circuit Board
7.4 Probe Positioning System Software Settings
7.5 DUT Software
8 Test Procedure
8.1 General Rules
8.2 Operational Check
8.3 Immunity Test
9 Test Report
9.1 General Rules

9.2 Test Conditions

9.3 Probe Design and Calibration

9.4 Experimental Data

9.5 Post-processing

9.6 Data Exchange

Appendix A (Informative) Near-field Probe Calibration

Appendix B (Informative) Electric Field Probes and Magnetic Field Probes

Appendix C (Informative) Coordinate System

Reference

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 9 of GB/T 42968 "Measurement of Electromagnetic Immunity of Integrated Circuits". GB/T 42968 has the following publications.

part.

---Part 1: General Conditions and Definitions;

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

---Part 3: High Current Injection (BCI) Method;

---Part 4: Direct Radio Frequency Power Injection Method;

---Part 5: Faraday Cage Method for Workbench;

---Part 8: Radiated Immunity Measurement - IC Stripline Method;

---Part 9: Surface scanning method for measuring radiation immunity.

This document is equivalent to IEC TS62132-9:2014 "Measurement of electromagnetic immunity of integrated circuits - Part 9: Measurement of radiated immunity".

Surface scanning method.

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).

Introduction

To standardize electromagnetic immunity measurement for integrated circuits, and to provide different electromagnetic immunity measurement methods for integrated circuit manufacturers and testing institutions.

GB/T 42968 specifies the general conditions, definitions, and test procedures for different measurement methods for measuring the electromagnetic immunity of integrated circuits.

The test requirements are proposed to consist of 7 parts.

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

---Part 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.

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

---Part 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.

---Part 5: Faraday Cage Test on a Workbench. The purpose is to specify the test procedures and requirements for the Faraday cage test on a workbench.

---Part 8: Radiated Immunity Measurement - IC Stripline Method. The purpose is to specify the test procedures and testing methods for the IC stripline method.

Require.

---Part 9: Surface Scanning Method for Radiated Immunity Measurement. The purpose is to specify the test procedures and requirements for the surface scanning method.

Electromagnetic immunity measurement of integrated circuits Part 9: Surface Scanning Method for Radiated Immunity Measurement

1 Scope

This document describes a measurement method for evaluating the effects of near-field electric, near-field magnetic, or near-field electromagnetic components on integrated circuits (ICs). This measurement method...

This method is designed for IC architecture analysis, such as planar planning and power

distribution optimization. It can also be used to measure the proximity of the scanning probe to...

This measurement method can be used to scan not only the IC but also its surrounding environment. For comparison...

For the surface scan immunity of the same IC, the standard test plate specified in IEC 62132-1 should be used.

This measurement method provides a sensitivity (immunity) graph for near-field disturbances of the IC to the electric or magnetic field above it. The performance of the measurement probe and...

The accuracy of the probe positioning system determines the measurement resolution. This method is expected to operate at a maximum frequency of 6 GHz. Existing probe technology will be used.

The upper frequency range can be extended, but this is beyond the scope of this document. This measurement method uses continuous wave (CW), amplitude modulation (AM), or...

Pulse modulation (PM) signals are generated in the frequency domain.

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.

Vocabulary(IEV)-Part 131: Circuittheory] Note. GB/T 2900.74-2008 Electrical Engineering Terminology - Circuit Theory (IEC 60050-131:2002, MOD) Note. GB/T 4365-2024 Electromagnetic compatibility (IEC 60050-161:2021, MOD) IEC 62132-1 Measurement of electromagnetic immunity of integrated circuits (150 kHz to 1 GHz) Part 1: General conditions and definitions Note. GB/T 42968.1-2023 Measurement of electromagnetic immunity of integrated circuits - Part 1: General conditions and definitions (IEC 62132-1:2015, IDT) IEC TS61967-3 Measurement of electromagnetic emission from integrated circuits-Part 3: Measurement of radiated emission-Surface scanning method Surfacescanmethod

3.1 Terms and Definitions

The terms and definitions defined in IEC 62132-1, IEC 60050-131 and IEC 60050-161, as well as the following terms and definitions, apply to this document.