

ICS 31.200
CCS L 56



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

GB/T 44807.3-2025

**EMC IC modelling - Part 3: Models of integrated circuits for EMI
behavioural simulation - Radiated emissions modelling
(ICEM-RE)**

集成电路电磁兼容建模 第3部分：集成电路电磁干扰特性仿真模型 辐射发射建模
(ICEM-RE)

(English Translation)

Issued on: December 31, 2025

Implemented on: July 1, 2026

Issued by: State Administration for Market Regulation

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References

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 3 of GB/T 44807 "Electromagnetic Compatibility Modeling of Integrated Circuits". GB/T 44807 has already published the following parts.

---Part 1: General Modeling Framework;

---Part 2: Simulation Model of Electromagnetic Interference Characteristics of Integrated Circuits - Conducted Emission Modeling (ICEM-CE);

---Part 3: Simulation Model of Electromagnetic Interference Characteristics of Integrated Circuits - Radiated Emission Modeling (ICEM-RE).

This document is equivalent to IEC 62433-3:2017 "Electromagnetic compatibility modeling of integrated circuits - Part 3: Simulation of electromagnetic interference characteristics of integrated circuits".

True Model Radiative Emission Modeling (ICEM-RE) 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 compatibility (EMC) modeling for integrated circuits and to provide integrated circuit manufacturers with EMC modeling methods and requirements,

GB/T 44807 "Integrated Circuit Electromagnetic Compatibility Modeling" specifies the general framework, methods, and requirements for integrated electromagnetic compatibility modeling, and is proposed to consist of 6 parts.

---Part 1: General Modeling Framework. The purpose is to define the framework and methods for macro-modeling of electromagnetic compatibility (EMC) in integrated circuits, and to define commonly used terminology.

Definitions, different modeling methods, and standardized requirements and data exchange formats for each model category.

---Part 2: Simulation Model of Electromagnetic Interference Characteristics of Integrated Circuits - Conducted Emission Modeling (ICEM-CE). The purpose is to specify the characteristics of integrated circuits...

Circuit conducted emission modeling methods and requirements.

---Part 2-1. Black Box Modeling Theory for Conducted Emissions. The aim is to provide a black box modeling theory for conducted emissions in integrated circuits.
theory.

---Part 3: Simulation Model of Electromagnetic Interference Characteristics of Integrated Circuits - Radiated Emission Modeling (ICEM-RE). The purpose is to specify the characteristics of integrated circuits...

Circuit radiated emission modeling methods and requirements.

---Part 4: Simulation Model of Radio Frequency Immunity Characteristics of Integrated Circuits - Conducted Immunity Modeling (ICIM-CI). The purpose is to specify...

Integrated circuit conducted immunity modeling methods and requirements.

---Part 6: Simulation Model of Pulse Immunity Characteristics in Integrated Circuits - Conducted Pulse Immunity Modeling (ICIM-CPI). The purpose is to...

The method and requirements for modeling the conducted pulse immunity of integrated circuits are specified.

Integrated Circuit Electromagnetic Compatibility Modeling Part 3: Integration Simulation model of electromagnetic interference characteristics of circuit radiated emission Modeling (ICEM-RE)

1 Scope

This document specifies a method for deriving a macromodel for simulating the radiated emission levels of an integrated circuit (IC). This model is commonly referred to as an integrated circuit model.

Emission Model - Radiated Emission (ICEM-RE). This model is designed for use when measurement or simulation data cannot be directly imported into simulation tools.

Model each IC individually, regardless of whether it has a related package, function blocks, or analog and digital ICs (input/output pins, digital cores, and power supplies).

Intellectual Property (IP) Block.

The IC macro model proposed in this document will be imported into a 3D electromagnetic simulation tool so that.

- Predict near-field radiated emissions from ICs;
- Assess the impact of radiated emissions on nearby ICs, cables, transmission lines, etc.

This document consists of two main parts.

- The first part is the electrical description of the ICEM-RE macromodel elements;
- Part Two proposes a general data exchange format based on XML called REML, which is more practical and universal.

The ICEM-RE is encoded in the form of a simulated launch.

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.

IEC 61967-1 Measurement of electromagnetic emissions from integrated circuits-Part 1: General conditions and definitions Note. GB/T 44937.1-2025 Electromagnetic emission measurement of integrated circuits - Part 1: General conditions and definitions (IEC 61967-1:2018, IDT) IEC TS61967-3 Measurement of electromagnetic emission from integrated circuits-Part 3: Measurement of radiated emission-Surface scanning method Surfacescanmethod Note. GB/T 44937.3-2025 Electromagnetic emission measurement of integrated circuits-Part 3: Surface scanning method for radiated emission measurement (IEC TS61967-3.

2014, IDT)

IEC 62433-1 Electromagnetic compatibility modeling of integrated circuits - Part 1: A general modeling framework Note. GB/T 44807.1-2024 Electromagnetic compatibility modeling of integrated circuits - Part 1: General modeling framework (IEC 62433-1:2019, IDT) IEC 62433-2 Electromagnetic compatibility modeling for integrated circuits - Part 2: