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**EMC IC modelling - Part 2: Models of integrated circuits for EMI
behavioural simulation - Conducted emissions modelling
(ICEM-CE)**

集成电路电磁兼容建模 第2部分：集成电路电磁干扰特性仿真模型 传导发射建模
(ICEM-CE)

(English Translation)

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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 2 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 62433-2:2017 "Electromagnetic compatibility modeling of integrated circuits - Part 2: Simulation of electromagnetic interference characteristics of integrated circuits".

True Model Conducted Emission Modeling (ICEM-CE) 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.

Electromagnetic compatibility modeling of integrated circuits Part 2: Simulation of Electromagnetic Interference Characteristics of Integrated Circuits Model-guided emission modeling (ICEM-CE)

1 Scope

This document specifies a macromodel for an integrated circuit (IC) to simulate conducted electromagnetic emissions on a printed circuit board. This model is commonly referred to as an integrated circuit (IC).

Integrated circuit emission model - conducted emission (ICEM-CE).

ICEM-CE macromodels can be used to model IC chips, functional blocks, and intellectual property (IP) blocks.

The ICEM-CE macro model can also be used to model both digital and analog ICs.

Conducted emissions typically have two sources.

- Conducted emissions generated by power terminals and ground reference structures;
- Conducted emissions generated by input/output (I/O) terminals.

The ICEM-CE macromodel addresses both types of conducted emission sources in one