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EMC IC modelling –

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

Modèles de circuits intégrés pour la CEM –

Partie 2: Modèles de circuits intégrés pour la simulation du comportement lors de perturbations électromagnétiques – Modélisation des émissions conduites (ICEM-CE)



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CONTENTS

FOREWORD.....	7
1 Scope.....	9
2 Normative references	9
3 Terms, definitions, abbreviations and conventions	9
3.1 Terms and definitions.....	9
3.2 Abbreviations.....	11
3.3 Conventions.....	11
4 Philosophy.....	11
4.1 General.....	11
4.2 Conducted emission from core activity (digital culprit)	12
4.3 Conducted emission from I/O activity	12
4.4 Data exchange format.....	12
5 ICEM-CE basic components	13
5.1 General.....	13
5.2 Internal Activity (IA)	13
5.2.1 General	13
5.2.2 Examples of IA	14
5.3 Passive Distribution Network (PDN).....	14
5.3.1 General	14
5.3.2 Examples of PDN	15
6 IC macro-models	16
6.1 Types of IC macro-models	16
6.2 General IC macro-model	16
6.3 Block-based IC macro-model	17
6.3.1 Block component.....	17
6.3.2 Inter-Block Coupling Component (IBC).....	18
6.3.3 Block-based IC macro-model structure	19
6.4 Sub-model-based IC macro-model	21
6.4.1 Sub-model component.....	21
6.4.2 Sub-model-based IC macro-model structure	22
7 CEML format	23
7.1 General.....	23
7.2 CEML structure.....	24
7.3 Global keywords	24
7.4 Header section.....	24
7.5 Lead definitions	25
7.6 SPICE macro-models.....	26
7.7 Validity section	28
7.7.1 General	28
7.7.2 Attribute definitions.....	29
7.8 PDN.....	31
7.8.1 General	31
7.8.2 Attribute definitions.....	32
7.8.3 Description	36
7.9 IBC	40
7.9.1 General	40

7.9.2	Attribute definitions	40
7.10	IA	42
7.10.1	General	42
7.10.2	Attribute definitions	42
7.10.3	Description	46
8	Requirements for parameter extraction	47
8.1	General	47
8.2	Environmental extraction constraints	47
8.3	IA parameter extraction	47
8.4	PDN parameter extraction	47
8.5	IBC parameter extraction	48
Annex A	(normative) Preliminary definitions for XML representation	49
A.1	XML basics	49
A.1.1	XML declaration	49
A.1.2	Basic elements	49
A.1.3	Root element	49
A.1.4	Comments	50
A.1.5	Line terminations	50
A.1.6	Element hierarchy	50
A.1.7	Element attributes	50
A.2	Keyword requirements	50
A.2.1	General	50
A.2.2	Keyword characters	51
A.2.3	Keyword syntax	51
A.2.4	File structure	51
A.2.5	Values	53
Annex B	(normative) CEML valid keywords and usage	56
B.1	Root element keywords	56
B.2	File header keywords	57
B.3	Validity section keywords	58
B.4	Global keywords	59
B.5	Lead Keyword	59
B.6	Lead_definition section attributes	60
B.7	Macromodels section attributes	60
B.8	Pdn section keywords	61
B.8.1	Lead element keywords	61
B.8.2	Netlist section keywords	63
B.9	Ibc section keywords	63
B.9.1	Lead element keywords	63
B.9.2	Netlist section keywords	65
B.10	Ia section keywords	65
B.10.1	Lead element keywords	65
B.10.2	Voltage section keywords	66
B.10.3	Current section keywords	68
Annex C	(informative) Example of ICEM-CE macro-model in CEML format	70
C.1	General	70
C.2	PDN and IBC sub-model	70
C.3	IA sub-model	71

C.4	Frequency domain ICEM-CE in CEML.....	73
C.5	Time domain ICEM-CE in CEML	75
Annex D (informative)	Conversions between parameter types	77
D.1	General.....	77
D.2	Conversion for one-port PDN	77
D.3	Conversion for two-port PDN	77
Annex E (informative)	Model parameter generation.....	79
E.1	General.....	79
E.2	Default structure and values	79
E.2.1	General	79
E.2.2	IA parameters.....	79
E.2.3	PDN parameters.....	80
E.3	Model parameter generation from design information	81
E.3.1	General	81
E.3.2	IA parameters.....	81
E.3.3	PDN parameters.....	85
E.4	Model parameter generation from measurements.....	87
E.4.1	IA parameters.....	87
E.4.2	PDN parameters	90
Annex F (informative)	Decoupling capacitors optimization.....	100
Annex G (informative)	Conducted emission prediction	102
Annex H (informative)	Conducted emission prediction at PCB level	103
Bibliography	105
Figure 1	– Decomposition example of a digital IC for conducted emissions analysis	12
Figure 2	– IA component in the case of a current source.....	13
Figure 3	– Example of IA characteristics in the time domain.....	14
Figure 4	– Example of IA characteristics in the frequency domain.....	14
Figure 5	– Example of a four-terminal PDN using lumped elements	15
Figure 6	– Example of a seven-terminal PDN using distributed elements	16
Figure 7	– Example of a seven-terminal PDN using matrix representation	16
Figure 8	– General IC macro-model	17
Figure 9	– Example of block component with a single IA.....	18
Figure 10	– Example of block components for I/Os	18
Figure 11	– Example of IBC with four internal terminals	19
Figure 12	– Relationship between blocks and IBC.....	19
Figure 13	– Block-based IC macro-model.....	20
Figure 14	– Example of block-based IC macro-model.....	21
Figure 15	– Example of simple sub-model.....	21
Figure 16	– Sub-model-based IC macro-model	22
Figure 17	– CEML inheritance hierarchy	23
Figure 18	– Example of a netlist file defining a sub-circuit.....	28
Figure 19	– PDN represented as S-parameters in Touchstone format.....	38
Figure 20	– Simulated IA waveform with corresponding parameters.....	45
Figure A.1	– Multiple XML (CEML) files.....	52

Figure A.2 – XML files with data files (*.dat)	52
Figure A.3 – XML files with additional files	53
Figure C.1 – Example pin-out of a microcontroller and the modelled pins	70
Figure C.2 – PDN sub-model topology	71
Figure C.3 – IA sub-model topology	72
Figure C.4 – IA of digital block in frequency domain	72
Figure C.5 – IA of digital block in time domain	73
Figure E.1 – Typical characterization current gate schematic	82
Figure E.2 – Current peak during switching transition	82
Figure E.3 – Example of IA extraction procedure from design	83
Figure E.4 – Technology Influence	83
Figure E.5 – Final current waveform for a program period	84
Figure E.6 – Comparison between measurement and simulation	84
Figure E.7 – Example lumped element model of a package	85
Figure E.8 – Circuit structure of the netlist	87
Figure E.9 – Principle of the IA computation in the frequency domain	88
Figure E.10 – Process involved to model $i_A(t)$	89
Figure E.11 – $i_{Ext}(t)$ measured using IEC 61967-4	89
Figure E.12 – $i_A(t)$ and $i_{Ext}(t)$ profiles	90
Figure E.13 – Conventional one-port S-parameter measurement	90
Figure E.14 – Two-port method for low impedance measurement	91
Figure E.15 – Two-port method for high impedance measurement	91
Figure E.16 – Example of a hardware set-up used to extract the PDN parameters	92
Figure E.17 – Miniature 50 Ω coaxial connectors	93
Figure E.18 – Impedance probe using two miniature coaxial connectors	93
Figure E.19 – Open and short terminations	93
Figure E.20 – Measurement probe model	94
Figure E.21 – De-embedding principle	94
Figure E.22 – Example of a predefined PDN structure	95
Figure E.23 – RL configuration	96
Figure E.24 – RLC configuration	97
Figure E.25 – RLC with magnetic coupling configuration	97
Figure E.26 – Impedance seen from Vcc and Gnd	97
Figure E.27 – Complete PDN component	98
Figure E.28 – Set-up for correlation (left), measurement and prediction model (right)	99
Figure E.29 – Set-up used to measure the internal decoupling capacitor	99
Figure F.1 – Equivalent schematic of the complete electronic system	100
Figure F.2 – Impedance prediction and measurements	101
Figure G.1 – IEC 61967-4 test set-up standard	102
Figure G.2 – Comparison between prediction and measurement	102
Figure H.1 – Prediction of ETVddc noise level at PCB level	103
Figure H.2 – Good agreements on the noise envelope	104

Table 1 – Attributes of Lead keyword in the <i>Lead_definitions</i> section.....	25
Table 2 – Compatibility between the Mode and Type fields for correct CEML annotation.....	26
Table 3 – <i>Subckt</i> definition.....	26
Table 4 – Definition of the <i>Validity</i> section	28
Table 5 – Definition of the Lead keyword for <i>Pdn</i> section	32
Table 6 – Valid data formats and their default units in the <i>Pdn</i> section.....	35
Table 7 – Valid file extensions in the <i>Pdn</i> section	35
Table 8 – Valid fields of the Lead keyword in the <i>Pdn</i> section	36
Table 9 – <i>Netlist</i> definition	39
Table 10 – Differences between the <i>Pdn</i> and <i>Ibc</i> section fields	41
Table 11 – Valid fields of the <i>Lead</i> keyword for IBC definition	41
Table 12 – Definition of the <i>Lead</i> keyword in the <i>la</i> section.....	42
Table 13 – <i>Voltage</i> and <i>Current</i> definition	43
Table 14 – Valid file extensions in the <i>la</i> section.....	43
Table 15 – Definition of the <i>Pulse</i> keyword in the <i>Voltage</i> or <i>Current</i> section.....	44
Table 16 – Base units of the <i>Pulse</i> section’s fields.....	44
Table 17 – Valid data formats and their default units for the <i>Voltage</i> and <i>Current</i> elements.....	46
Table A.1 – Valid logarithmic units	54
Table D.1 – One-port conversion	77
Table D.2 – Two-port conversion	78
Table E.1 – Typical parameters for CMOS logic technologies	80
Table E.2 – Typical number of logic gates vs. CPU technology	80
Table E.3 – R, L and C parameters for various package types	81
Table E.4 – Measurement configurations and extracted RLC parameters.....	95

INTERNATIONAL ELECTROTECHNICAL COMMISSION

EMC IC MODELLING –

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

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International Standard IEC 62433-2 has been prepared by subcommittee 47A: Integrated Circuits of IEC technical committee 47: Semiconductor devices.

This second edition cancels and replaces the first edition published in 2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

Incorporation of an XML based exchange format for model representation.

The text of this standard is based on the following documents:

FDIS	Report on voting
47A/999/FDIS	47A/1007/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62433 series, published under the general title *EMC IC modelling*, can be found on the IEC website.

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EMC IC MODELLING –

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

1 Scope

This part of IEC 62433 specifies macro-models for an Integrated Circuit (IC) to simulate conducted electromagnetic emissions on a printed circuit board. The model is commonly called Integrated Circuit Emission Model – Conducted Emission (ICEM-CE).

The ICEM-CE macro-model can also be used for modelling an IC-die, a functional block and an Intellectual Property (IP) block.

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

Basically, conducted emissions have two origins:

- conducted emissions through power supply terminals and ground reference structures;
- conducted emissions through input/output (I/O) terminals.

The ICEM-CE macro-model addresses those two types of origins in a single approach.

This standard defines structures and components of the macro-model for EMI simulation taking into account the IC's internal activities.

This part of IEC 62433 has two main parts:

- the first is the electrical description of ICEM-CE macro-model elements along with the specific requirements for information.
- the second part proposes a universal data exchange format called CEML based on XML. This format allows encoding the ICEM-CE in a more useable and generic form for simulating the conducted emissions.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC TS 62433-1:2011, *EMC IC modelling – Part 1: General modelling framework*

CISPR 17, *Methods of measurement of the suppression characteristics of passive EMC filtering devices*

3 Terms, definitions, abbreviations and conventions

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.