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REDLINE VERSION

Halvledarkomponenter – Integrerade kretsar – Mätning av elektromagnetisk emission – Del 4: Mätning av ledningsbundna störningar med direkt koppling 1 ohm/150 ohm

Integrated circuits –

Measurement of electromagnetic emissions –

Part 4: Measurement of conducted emissions, 1 ohm/150 ohm direct coupling method

En så kallad ”Redline version” (RLV) innehåller både den fastställda IEC-standarden och en ändringsmarkerad standard. Alla tillägg och borttagningar sedan den tidigare utgåvan är markerade med färg. Med en RLV sparar du mycket tid när du ska identifiera och bedöma aktuella ändringar i standarden. SEK Svensk Elstandard kan bara ge ut en RLV i de fall den finns tillgänglig från IEC.

INTERNATIONAL STANDARD



Integrated circuits – Measurement of electromagnetic emissions, ~~150 kHz to 4~~
~~Ghz~~ –

Part 4: Measurement of conducted emissions – 1 Ω /150 Ω direct coupling
method

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 31.200

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INTEGRATED CIRCUITS –
MEASUREMENT OF ELECTROMAGNETIC EMISSIONS,**
~~150 kHz TO 1 GHz –~~**Part 4: Measurement of conducted emissions –
1 Ω /150 Ω direct coupling method**

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61967-4:2002+AMD1:2006 CSV. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 61967-4 has been prepared by subcommittee 47A: Integrated circuits, of IEC technical committee 47: Semiconductor devices. It is an International Standard.

This second edition cancels and replaces the first edition published in 2002 and Amendment 1:2006. This edition constitutes a technical revision.

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

- a) frequency range of 150 kHz to 1 GHz has been deleted from the title;
- b) recommended frequency range for 1 Ω method has been reduced to 30 MHz;
- c) Annex G with recommendations and guidelines for frequency range extension beyond 1 GHz has been added.

The text of this International Standard is based on the following documents:

Draft	Report on voting
47A/1101/CDV	47A/1107/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts of the IEC 61967 series, under the general title *Integrated circuits – Measurement of electromagnetic emissions* can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTEGRATED CIRCUITS – MEASUREMENT OF ELECTROMAGNETIC EMISSIONS, ~~150 kHz TO 1 GHz –~~

Part 4: Measurement of conducted emissions – 1 Ω /150 Ω direct coupling method

1 Scope

This part of IEC 61967 specifies a method to measure the conducted electromagnetic emission (EME) of integrated circuits by direct radio frequency (RF) current measurement with a 1 Ω resistive probe and RF voltage measurement using a 150 Ω coupling network. These methods ~~guarantee~~ ensure a high degree of ~~repeatability~~ reproducibility and correlation of EME ~~measurements~~ measurement results.

~~IEC 61967-1 specifies general conditions and definitions of the test methods.~~

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 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61967-1, *Integrated circuits – Measurement of electromagnetic emissions*, ~~150 kHz to 1 GHz – Part 1: General conditions and definitions~~

~~CISPR 16-1-1, Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus~~

~~CISPR 16-1-2, Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-2: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Conducted disturbances~~

~~CISPR 16-1-3, Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-3: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Disturbance power~~

~~CISPR 16-1-4, Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-4: Radio disturbance and immunity measuring apparatus – Ancillary equipment – Radiated disturbances~~

~~CISPR 16-1-5, Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-5: Radio disturbance and immunity measuring apparatus – Antenna calibration test sites for 30 MHz to 1 000 MHz~~

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Halvledarkomponenter – Integrerade kretsar – Mätning av elektromagnetisk emission – Del 4: Mätning av ledningsbundna störningar med direkt koppling 1 ohm/150 ohm

*Integrated circuits –
Measurement of electromagnetic emissions –
Part 4: Measurement of conducted emissions, 1 ohm/150 ohm direct coupling method*

Som svensk standard gäller europastandarden EN IEC 61967-4:2021. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61967-4:2021.

Nationellt förord

Europastandarden EN IEC 61967-4:2021

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61967-4, Second edition, 2021 - Integrated circuits - Measurement of electromagnetic emissions - Part 4: Measurement of conducted emissions, 1 ohm/150 ohm direct coupling method**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61967-4, utgåva 1, 2003, SS-EN 61967-4/A1, utgåva 1, 2006 och SS-EN 61967-4 AC1, utgåva 1, 2017, gäller ej fr o m 2024-04-20.

ICS 31.200.00

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English Version

**Integrated circuits - Measurement of electromagnetic emissions
- Part 4: Measurement of conducted emissions - 1 Ω /150 Ω
direct coupling method
(IEC 61967-4:2021)**

Circuits intégrés - Mesure des émissions
électromagnétiques - Partie 4: Mesure des émissions
conduites - Méthode par couplage direct 1 Ω /150 Ω
(IEC 61967-4:2021)

Integrierte Schaltungen - Messung von
elektromagnetischen Aussendungen - Teil 4: Messung der
leitungsgeführten Aussendungen - Messung mit direkter 1-
Ohm-/150-Ohm-Kopplung
(IEC 61967-4:2021)

This European Standard was approved by CENELEC on 2021-04-20. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 47A/1101/CDV, future edition 2 of IEC 61967-4, prepared by SC 47A "Integrated circuits" of IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61967-4:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-01-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-04-20

This document supersedes EN 61967-4:2002 and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 61967-4:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

CISPR 16-1-2 NOTE Harmonized as EN 55016-1-2

CISPR 25 NOTE Harmonized as EN 55025

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-6	-	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	-
IEC 61967-1	-	Integrated circuits - Measurement of electromagnetic emissions - Part 1: General conditions and definitions	EN IEC 61967-1	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INTEGRATED CIRCUITS –
MEASUREMENT OF ELECTROMAGNETIC EMISSIONS –****Part 4: Measurement of conducted emissions –
1 Ω /150 Ω direct coupling method**

FOREWORD

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IEC 61967-4 has been prepared by subcommittee 47A: Integrated circuits, of IEC technical committee 47: Semiconductor devices. It is an International Standard.

This second edition cancels and replaces the first edition published in 2002 and Amendment 1:2006. This edition constitutes a technical revision.

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

- a) frequency range of 150 kHz to 1 GHz has been deleted from the title;
- b) recommended frequency range for 1 Ω method has been reduced to 30 MHz;
- c) Annex G with recommendations and guidelines for frequency range extension beyond 1 GHz has been added.

The text of this International Standard is based on the following documents:

Draft	Report on voting
47A/1101/CDV	47A/1107/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts of the IEC 61967 series, under the general title *Integrated circuits – Measurement of electromagnetic emissions* can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTEGRATED CIRCUITS – MEASUREMENT OF ELECTROMAGNETIC EMISSIONS –

Part 4: Measurement of conducted emissions – 1 Ω /150 Ω direct coupling method

1 Scope

This part of IEC 61967 specifies a method to measure the conducted electromagnetic emission (EME) of integrated circuits by direct radio frequency (RF) current measurement with a 1 Ω resistive probe and RF voltage measurement using a 150 Ω coupling network. These methods ensure a high degree of reproducibility and correlation of EME measurement results.

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 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61967-1, *Integrated circuits – Measurement of electromagnetic emissions – Part 1: General conditions and definitions*