Integrated circuits - Measurement of electromagnetic immunity - Part 2: Measurement of radiated immunity -And Sold of the Angel of the An TEM cell and wideband TEM cell method



### **FESTI STANDARDI FESSÕNA**

### **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 62132-2:2011 sisaldab Euroopa standardi EN 62132-2:2011 ingliskeelset teksti.

This Estonian standard EVS-EN 62132-2:2011 consists of the English text of the European standard EN 62132-2:2011.

Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 04.03.2011.

Date of Availability of the European standard text 04.03.2011.

Standard on kättesaadav Eesti standardiorganisatsioonist.

The standard is available from Estonian standardisation organisation.

ICS 31.200

#### Standardite reprodutseerimis- ja levitamisõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega: Aru 10 Tallinn 10317 Eesti; <a href="www.evs.ee">www.evs.ee</a>; Telefon: 605 5050; E-post: <a href="mailto:info@evs.ee">info@evs.ee</a></a>

### Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation: Aru str 10 Tallinn 10317 Estonia; <a href="www.evs.ee">www.evs.ee</a>; Phone: 605 5050; E-mail: <a href="mailto:info@evs.ee">info@evs.ee</a>

### **EUROPEAN STANDARD**

### EN 62132-2

### NORME EUROPÉENNE EUROPÄISCHE NORM

March 2011

ICS 31.200

English version

# Integrated circuits Measurement of electromagnetic immunity Part 2: Measurement of radiated immunity TEM cell and wideband TEM cell method

(IEC 62132-2:2010)

Circuits intégrés -Mesure de l'immunité électromagnétique -Partie 2: Mesure de l'immunité rayonnée -Méthode de cellule TEM et cellule TEM à large bande (CEI 62132-2:2010) Integrierte Schaltungen Messung der elektromagnetischen
Störfestigkeit Teil 2: Messung der Störfestigkeit bei
Einstrahlungen TEM-Zellen- und Breitband-TEMZellenverfahren
(IEC 62132-2:2010)

This European Standard was approved by CENELEC on 2011-01-02. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

### CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

### **Foreword**

The text of document 47A/838/FDIS, future edition 1 of IEC 62132-2, prepared by SC 47A, Integrated circuits, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62132-2 on 2011-01-02.

This part of EN 62132 is to be read in conjunction with EN 62132-1.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

 latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement

(dop) 2011-10-02

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2014-01-02

Annex ZA has been added by CENELEC.

### **Endorsement notice**

The text of the International Standard IEC 62132-2:2010 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:

[7] IEC 61000-4-3:2006	NOTE Harmonized as EN 61000-4-3:2006 (not modified).
IEC 61000-4-3:2006/A1:2007	NOTE Harmonized as EN 61000-4-3:2006/A1:2008 (not modified).
[8] IEC 61000-4-6:2008	NOTE Harmonized as EN 61000-4-6:2009 (not modified).
[9] IEC 61000-4-20:2003	NOTE Harmonized as EN 61000-4-20:2003 (not modified).
[10] CISPR 16-1-1:2006	NOTE Harmonized as EN 55016-1-1:2007 (not modified).
[12] CISPR 16-1-5:2003	NOTE Harmonized as EN 55016-1-5:2004 (not modified).
[13] CISPR 16-2-1:2008	NOTE Harmonized as EN 55016-2-1:2009 (not modified).
[15] CISPR 16-2-3:2006	NOTE Harmonized as EN 55016-2-3:2006 (not modified).
[16] CISPR 16-2-4:2003	NOTE Harmonized as EN 55016-2-4:2004 (not modified).

## Annex ZA (normative)

# Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 60050-131	2002	International Electrotechnical Vocabulary (IEV) - Part 131: Circuit theory	-	-
IEC 60050-161	1990	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
IEC 61967-2	-	Integrated circuits - Measurement of electromagnetic emissions, 150 kHz to 1 GHz - Part 2: Measurement of radiated emissions - TEM cell and wideband TEM cell method	EN 61967-2	-
IEC 62132-1	2006	Integrated circuits - Measurement of electromagnetic immunity, 150 kHz to 1 GHz - Part 1: General conditions and definitions	EN 62132-1 + corr. November	2006 2006
			9	
				5

### CONTENTS

FΟ	REW	ORD		3				
1	Scop	e		5				
2	Norn	native r	eferences	5				
3	Tern	s and o	definitions	5				
4								
5								
6	Test	equipm	ent	7				
	6.1		al					
	6.2		S					
	6.3	RF dis	sturbance source	7				
	6.4	TEM c	cell	8				
	6.5	_	ertz TEM cell					
	6.6		ermination					
	6.7		nonitor					
7		•						
	7.1		al					
	7.2		et-up details					
_	7.3		est board					
8			ure					
	8.1		al					
	8.2		nity measurement					
		8.2.1	GeneralRF disturbance signals	10				
		8.2.2 8.2.3	Test frequencies	10				
		8.2.4	Test levels and dwell time					
		8.2.5	DUT monitoring					
		8.2.6	Detail procedure					
9	Test		Detail procedure					
			tive) Field strength characterization procedure					
		,	ative) TEM CELL and wideband TEM cell descriptions					
			unive) TEIN GEEL und Wideband TEIN den desemptione					
טוט	niogra	piry						
Fic	ure 1	_ TEM	and GTEM cell cross-section	Ω				
			cell test set-up					
_								
			M cell test set-up					
			inity measurement procedure flowchart					
			ield characterization test fixture					
			e electric field to voltage transfer function					
Fig	ure A	.3 – H-f	ield characterization test fixture	19				
Fig	ure A	.4 – The	e magnetic field to voltage transfer function	20				

### INTEGRATED CIRCUITS – MEASUREMENT OF ELECTROMAGNETIC IMMUNITY –

### Part 2: Measurement of radiated immunity – TEM cell and wideband TEM cell method

### 1 Scope

This International Standard specifies a method for measuring the immunity of an integrated circuit (IC) to radio frequency (RF) radiated electromagnetic disturbances. The frequency range of this method is from 150 kHz to 1 GHz, or as limited by the characteristics of the TEM cell.

### 2 Normative references

The following referenced documents are indispensable for the application 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 60050-131:2002, International Electrotechnical Vocabulary (IEV) - Part 131: Circuit theory

IEC 60050-161:1990, International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility

IEC 61967-2, Integrated circuits – Measurement of electromagnetic emissions, 150 kHz to 1 GHz – Part 2: Measurement of radiated emissions – TEM cell and wideband TEM cell method

IEC 62132-1:2006, Integrated circuits – Measurement of electromagnetic immunity, 150 kHz to 1 GHz – Part 1: General conditions and definitions

### 3 Terms and definitions

For the purpose of this document, the definitions in IEC 62132-1, IEC 60050-131 and IEC 60050-161, as well as the following, apply.

#### 3.1

### transverse electromagnetic mode (TEM)

waveguide mode in which the components of the electric and magnetic fields in the propagation direction are much less than the primary field components across any transverse cross-section

#### 3.2

### **TEM** waveguide

open or closed transmission line system, in which a wave is propagating in the transverse electromagnetic mode to produce a specified field for testing purposes.