

## **Methods of measurement for radio transmitters -- Part 1: Performance characteristics of terrestrial digital television transmitters**

Methods of measurement for radio transmitters --  
Part 1: Performance characteristics of terrestrial  
digital television transmitters

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 62273-1:2007 sisaldab Euroopa standardi EN 62273-1:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 28.05.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 62273-1:2007 consists of the English text of the European standard EN 62273-1:2007.</p> <p>This document is endorsed on 28.05.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This part of IEC 62273 gives the conditions for measuring the performance parameters of terrestrial digital transmitters and for facilitating the comparison of measurements which are carried out by different personnel. It contains details of specially selected methods for determining the most important performance parameters of digital transmitters. The measurement methods described apply to a limited number of performance parameters, i.e. those which can give rise to ambiguous interpretation due to the use of different methods and conditions. They are neither restrictive nor mandatory: measurements can be chosen for each particular case. If necessary, additional tests can be carried out but they shall comply with those standards which have been established by other study groups, subcommittees of the IEC or other international or suitably accredited organizations.</p>	<p><b>Scope:</b></p> <p>This part of IEC 62273 gives the conditions for measuring the performance parameters of terrestrial digital transmitters and for facilitating the comparison of measurements which are carried out by different personnel. It contains details of specially selected methods for determining the most important performance parameters of digital transmitters. The measurement methods described apply to a limited number of performance parameters, i.e. those which can give rise to ambiguous interpretation due to the use of different methods and conditions. They are neither restrictive nor mandatory: measurements can be chosen for each particular case. If necessary, additional tests can be carried out but they shall comply with those standards which have been established by other study groups, subcommittees of the IEC or other international or suitably accredited organizations.</p>
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ICS 33.060.20

Võtmesõnad:

**Methods of measurement for radio transmitters -  
Part 1: Performance characteristics  
of terrestrial digital television transmitters  
(IEC 62273-1:2007)**

Méthodes de mesure applicables  
aux émetteurs radioélectriques -  
Partie 1: Qualité de fonctionnement  
des émetteurs de télévision  
numérique terrestre  
(CEI 62273-1:2007)

Messverfahren für Funksender -  
Teil 1: Übertragungseigenschaften  
von terrestrischen digitalen  
Fernsehsendern  
(IEC 62273-1:2007)

This European Standard was approved by CENELEC on 2007-03-01. 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.

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

## Foreword

The text of document 103/63/FDIS, future edition 1 of IEC 62273-1, prepared by IEC TC 103, Transmitting equipment for radio communication, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62273-1 on 2007-03-01.

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) | 2007-12-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2010-03-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62273-1:2007 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60244-2 +	NOTE	Harmonized as HD 236.2 S1:1977 (not modified).
IEC 60244-2A		

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## 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>	<u>EN/HD</u>	<u>Year</u>
IEC 60215	- <sup>1)</sup>	Safety requirements for radio transmitting equipment	EN 60215	1989 <sup>2)</sup>
IEC 60244-1	- <sup>1)</sup>	Methods of measurement for radio transmitters - Part 1: General characteristics for broadcast transmitters	EN 60244-1	2000 <sup>2)</sup>
ITU-R Recommendation BT.1306-3	- <sup>1)</sup>	Error correction, data framing, modulation and emission methods for digital terrestrial television broadcasting	-	-
ITU-R	2004	Radio Regulations	-	-

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<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

# INTERNATIONAL STANDARD

**IEC**  
**62273-1**

First edition  
2007-02

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## **Methods of measurement for radio transmitters –**

### **Part 1: Performance characteristics of terrestrial digital television transmitters**



Reference number  
IEC 62273-1:2007(E)

## Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

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**62273-1**

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### **Part 1: Performance characteristics of terrestrial digital television transmitters**

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International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: [inmail@iec.ch](mailto:inmail@iec.ch) Web: [www.iec.ch](http://www.iec.ch)



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**METHODS OF MEASUREMENT FOR RADIO TRANSMITTERS –****Part 1: Performance characteristics of terrestrial digital television transmitters**

## FOREWORD

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International Standard IEC 62273-1 has been prepared by IEC technical committee 103: Transmitting equipment for radio communication

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

FDIS	Report on voting
103/63/FDIS	103/65/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.

The list of all the publications of the IEC 62273 series, under the general title *Methods of measurement for radio transmitters*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

A bilingual edition of this document may be issued at a later date.

## METHODS OF MEASUREMENT FOR RADIO TRANSMITTERS –

### Part 1: Performance characteristics of terrestrial digital television transmitters

#### 1 Scope

This part of IEC 62273 gives the conditions for measuring the performance parameters of terrestrial digital transmitters and for facilitating the comparison of measurements which are carried out by different personnel. It contains details of specially selected methods for determining the most important performance parameters of digital transmitters. The measurement methods described apply to a limited number of performance parameters, i.e. those which can give rise to ambiguous interpretation due to the use of different methods and conditions. They are neither restrictive nor mandatory: measurements can be chosen for each particular case. If necessary, additional tests can be carried out but they shall comply with those standards which have been established by other study groups, subcommittees of the IEC or other international or suitably accredited organizations.

No limits have been assigned to quantify acceptable ranges of performance parameters. These are judged to be properly included in the technical specifications for individual transmitters; however, the terms and the manner used to quantify them should ideally be those described in a future IEC publication.

The measurement methods described in this standard are intended for type approval tests. However they can equally well apply to acceptance tests measurements and quality control tests either in factories or on site.

Test signals are used to measure performance parameters for both digital and analogue terrestrial transmitters. Their electronic characteristics and their associated performance parameters are widely understood. The test signals are measured after they have gone through the transmitter equipment to determine if their degradation is within the required quality criteria.

This standard does not go into any detail regarding MPEG 2 signals or DVB processes nor does it deal with digital signal processing.

#### 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 60215, *Safety requirements for radio transmitting equipment*

IEC 60244-1, *Methods of measurement for radio transmitters – Part 1: General characteristics for broadcast transmitters*

ITU-R Recommendation BT.1306-3, *Error correction, data framing, modulation and emission methods for digital terrestrial television broadcasting*.

ITU-R:2004, *Radio Regulations*

ETS 30 0744, *Digital video broadcasting – Framing structure, channel coding and modulation for digital terrestrial television*.

ETSI 101 290, *Digital video broadcasting (DVB) – Measurement guidelines for DVB system*

### **3 Terms, definitions and abbreviations**

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

#### **3.1**

##### **ASI**

Asynchronous Serial Interface

#### **3.2**

##### **ATSC**

Advanced Television Systems Committee

#### **3.3**

##### **BER**

Bit Error Ratio

#### **3.4**

##### **BW**

Bandwidth

#### **3.5**

##### **C/N**

Ratio of the r.f. or i.f. carrier power to noise power

#### **3.6**

##### **COFDM**

Coded Orthogonal Frequency Division Multiplex

#### **3.7**

##### **CPE**

Common Phase Error

#### **3.8**

##### **DVB**

Digital Video Broadcasting

#### **3.9**

##### **DVB-T**

Digital Video Broadcasting baseline system for digital terrestrial television

#### **3.10**

##### **END**

Equivalent Noise Degradation

#### **3.11**

##### **ETS**

European Telecommunication Standard

#### **3.12**

##### **ICI**

Inter Carrier Interference