

**SLOVENSKI STANDARD**  
**SIST EN 60315-3:2001/A1:2001**  
**01-marec-2001**

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**Methods of measurement on radio receivers for various classes of emission - Part 3: Receivers for amplitude-modulated sound broadcasting emissions - Amendment A1 (IEC 60315-3:1989/A1:1999)**

Methods of measurement on radio receivers for various classes of emission -- Part 3: Receivers for amplitude-modulated sound-broadcasting emissions

Meßverfahren für Funkempfänger für verschiedene Sendarten -- Teil 3: Radiofrequenzmessungen an Empfängern für amplitudenmodulierte Sendungen  
(standards.iteh.ai)

Méthodes de mesure applicables aux récepteurs radioélectriques pour diverses classes d'émission -- Partie 3: Récepteurs pour émissions de radiodiffusion à modulation d'amplitude  
<https://standards.iteh.ai/catalog/standards/sist/1b9c7511-cccc-4050-ac09-30ac62f29227/sist-en-60315-3-2001-a1-2001>

**Ta slovenski standard je istoveten z: EN 60315-3:1999/A1:1999**

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**ICS:**

33.160.20      Radijski sprejemniki      Radio receivers

**SIST EN 60315-3:2001/A1:2001      en**

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[SIST EN 60315-3:2001/A1:2001](https://standards.iteh.ai/catalog/standards/sist/1b9c7311-ecc0-4650-ac09-30ae62f29227/sist-en-60315-3-2001-a1-2001)

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EUROPEAN STANDARD  
 NORME EUROPÉENNE  
 EUROPÄISCHE NORM

**EN 60315-3/A1**

April 1999

ICS 33.160.20

English version

**Methods of measurement on radio receivers for various classes of emission  
 Part 3: Receivers for amplitude-modulated sound-broadcasting emissions  
 (IEC 60315-3:1989/A1:1999)**

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This amendment A1 modifies the European Standard EN 60315-3:1999; it was approved by CENELEC on 1999-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

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 100A/110/FDIS, future amendment 1 to IEC 60315-3:1989, prepared by SC 100A, Multimedia end-user equipment, of IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60315-3:1999 on 1999-04-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2000-04-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2002-04-01

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### Endorsement notice

The text of amendment 1:1999 to the International Standard IEC 60315-3:1989 was approved by CENELEC as an amendment to the European Standard without any modification.

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NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

**60315-3**

1989

AMENDEMENT 1  
AMENDMENT 1  
1999-02

Amendement 1

**Méthodes de mesure applicables  
aux récepteurs radioélectriques  
pour diverses classes d'émission –**

**STANDARD PREVIEW**

**Partie 3:**

**Récepteurs pour émissions de radiodiffusion  
à modulation d'amplitude**

SIST EN 60315-3:2001/A1:2001

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Amendment 1

**Methods of measurement on radio receivers  
for various classes of emission –**

**Part 3:**

**Receivers for amplitude-modulated  
sound-broadcasting emissions**

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International Electrotechnical Commission  
Telefax: +41 22 919 0300

3, rue de Varembeé Geneva, Switzerland  
e-mail: [inmail@iec.ch](mailto:inmail@iec.ch) IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

**P**

*Pour prix, voir catalogue en vigueur  
For price, see current catalogue*

## FOREWORD

This amendment has been prepared by subcommittee 100A: Multimedia end-user equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

FDIS	Report on voting
100A/110/FDIS	100A/118/RVD

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

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### 3.2 Method of measurement

*Replace note 1 in a) by the following text:*

- 1 Unweighted noise measurements using a wide-band filter or A-weighting noise measurements may be made if required (see clause 6 of IEC 60315-1). In these methods, noise is measured with an r.m.s. meter (preferably a true r.m.s. meter). The method used should be clearly stated with the results.

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#### 3.4.3 Noise-limited sensitivity

*Add the following note to the end of the paragraph:*

NOTE – The unweighted noise measurement may be used if required. The method used should be clearly stated with the results.

Page 33

### 5.3 Presentation of results

*Add the following sentence:*

An example is shown in figure 4.

Page 35

### 6.3 Presentation of results

*Add the following sentence:*

An example is shown in figure 5.

Page 43

## 8.2 Presentation of results

*Add the following sentence:*

An example is shown in figure 6.

Page 53

## 10.3 Presentation of results

*Add the following sentence:*

Examples are shown in figures 7, 8 and 9.

## 10.5 Presentation of results

*Add the following sentence:*

An example is shown in figure 10.

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## 11.3 Presentation of results

*Add the following sentences:*

An example is shown in figure 11. [SIST EN 60315-3:2001/A1:2001](https://standards.iteh.ai/catalog/standards/sist/1b9c7311-ccc0-4650-ac09-6a12093171de/iec-60315-3-2001)  
<https://standards.iteh.ai/catalog/standards/sist/1b9c7311-ccc0-4650-ac09-6a12093171de/iec-60315-3-2001>

In the case of a receiver which is designed to receive emissions using pre-emphasis, the de-emphasis characteristics of the receiver may be presented on the same graph, as a second ordinate.

Page 59

## 15 Single-signal beat-notes

### 15.1 Introduction

*In the second last line of the first paragraph, replace “sub-multiples” by “subharmonics”.*

*Replace items a) and b) by the following text:*

- a) harmonics and subharmonics of the intermediate frequency:  $mf_i/n$ , where  $m$  and  $n$  are positive integers and  $f_i$  is the intermediate frequency. These give rise to a.f. beat-notes (whistles) when  $f_d = pf_i$ , where  $f_d$  is the operating frequency,  $p$  may have the following values for example: 1/3, 2/3, 4/3, 5/3, 2, 3, 4, 5. Of these,  $p = 2$  and  $p = 3$  are the most important for MF band receivers of conventional design;

- b) harmonics and subharmonics of internal clock or oscillator frequencies  $mf_c/n$ , where  $m$  and  $n$  are positive integers and  $f_c$  is a clock frequency. These signals may give rise to a.f. beat-notes (whistles) when:

$$f_d = \frac{m}{n} f_c$$

Delete the paragraph after item b) starting "As a consequence of .....".

Replace item c) by the following text:

- c) intermodulation products of harmonics of the local oscillator frequency and harmonics and subharmonics of the internal clock or oscillator frequencies:  $|mf_c/n - l(f_d + f_i)|$ , where  $m$ ,  $n$  and  $l$  are positive integers. These signals may give rise to a.f. beat-notes (whistles) when:

$$f_d = \frac{m}{n \cdot l} f_c - \frac{l \pm 1}{l} f_i$$

All combinations of  $l$ ,  $m$  and  $n$  which can give beat-notes, in any frequency band of which the receiver is designed, should be checked.

Page 61

## 15.2 Method of measurement

Replace item a) to item f), on pages 61 and 63, by the following text:

- a) The receiver is brought under standard measuring conditions. With no signal input, tune the receiver slowly over the tuning range while listening to the audio output and note the frequencies at which audible whistles occur. Particular attention should be given to frequencies near harmonics of the intermediate frequency, and of any clock frequency (such as for a tuning synthesizer), which fall within the tuning range.
- b) An unmodulated r.f. signal is applied at the level corresponding to the noise-limited sensitivity and the receiver is tuned slowly over the tuning range while listening to the audio output. If any audible whistle is observed, adjust the input signal frequency to produce zero beat (that is, as low an audio output frequency as possible) and note the input frequency.
- c) At each of these frequencies, the modulation is set to zero and the signal frequency is adjusted slightly so that the beat-note frequency is equal to the standard reference frequency, choosing the stronger response if there is more than one. It may be desirable to adjust the volume control (if any) if the a.f. output level is low. An a.f. band-pass filter may also be included, if required. The a.f. output level is then recorded.
- d) The input signal frequency is changed to a nearby frequency at which there are no beat-notes. The receiver is tuned to that frequency, and 30 % modulation is applied at the standard reference frequency and the a.f. output level is noted.
- e) The difference between the output level of the standard reference frequency and that obtained in c) is recorded as the result. Alternatively, the result may be expressed as a percentage modulation factor:

$$m = \text{antilog} [(L_5 - L_4 - 10,5)/20] \times 100 \%$$

where  $L_4$  is the a.f. output level obtained in item d), and  $L_5$  is the a.f. output level obtained in item c).

- f) The measurements are repeated at other frequencies noted in a) and b).



Page 63

### 15.3 Presentation of results

*Add the following sentence:*

An example is shown in figure 12.

Page 69

### 20.2 Presentation of results

*Add the following sentence:*

Other examples are also shown in figures 13 and 14.

#### 21.1 Method of measurement

*Add the following sentence to item b):*

An example is shown in figure 15.

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### 22.3 Presentation of results

*Add the following sentence:*

An example is shown in figure 16. [SIST EN 60315-3:2001/A1:2001  
https://standards.iteh.ai/catalog/standards/sist/1b9c7311-ecc0-4650-ac09-30ae62f29227/sist-en-60315-3-2001-a1-2001](https://standards.iteh.ai/catalog/standards/sist/1b9c7311-ecc0-4650-ac09-30ae62f29227/sist-en-60315-3-2001-a1-2001)

Page 77

*Add new figures 4 to 16 after the existing figure 3:*

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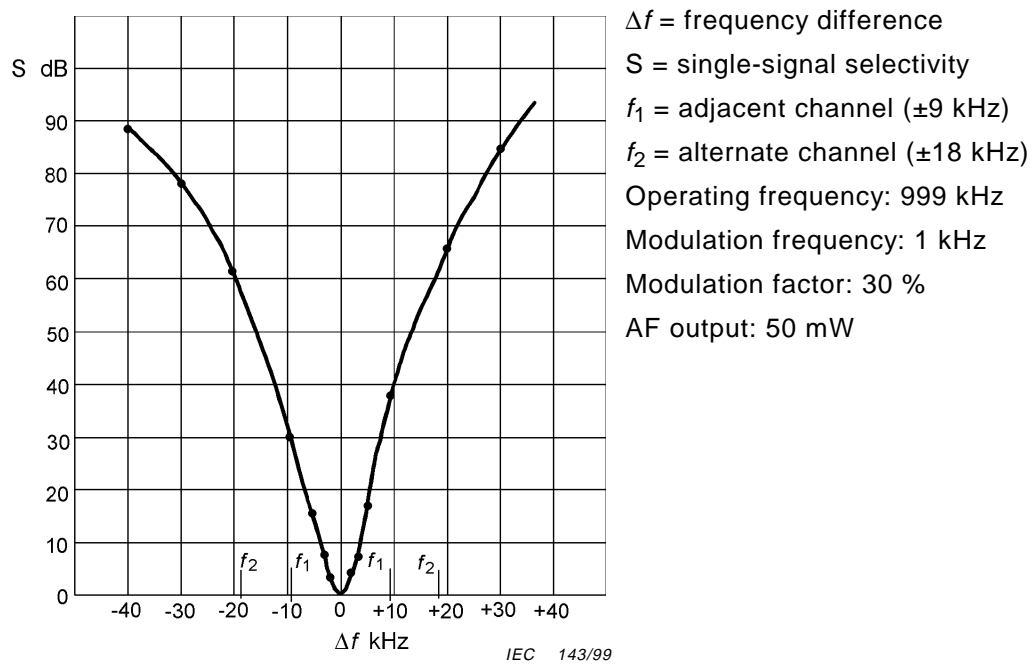
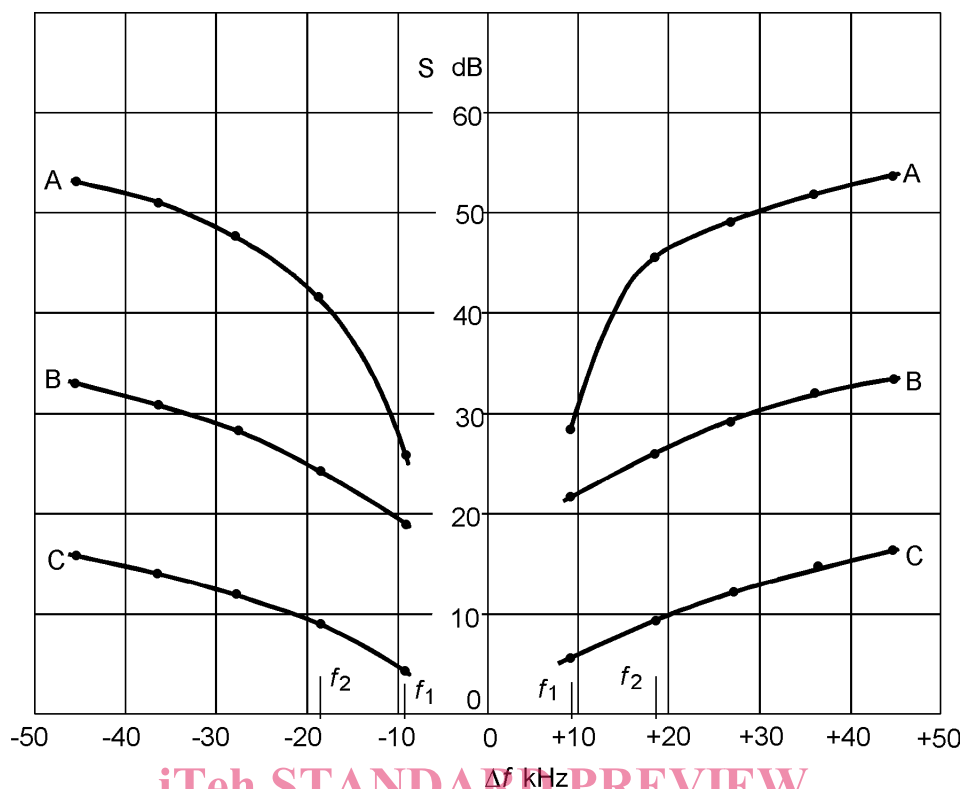


Figure 4 – Single-signal selectivity (see clause 5)

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IEC 144/99

$\Delta f$  = frequency difference

S = two-signal selectivity

$f_1$  = adjacent channel ( $\pm 9$  kHz)

$f_2$  = alternate channel ( $\pm 18$  kHz)

A = input signal level 54 dB( $\mu$ V/m)

B = input signal level 74 dB( $\mu$ V/m)

C = input signal level 94 dB( $\mu$ V/m)

Operating frequency: 999 kHz

Modulation frequency: 1 kHz

Modulation factor: 30 %

AF output: 50 mW

Figure 5 – Two-signal selectivity (see clause 6)