SLOVENSKI STANDARD
SIST EN 55013:1995/A12:1997

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Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment - Amendment 12

Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment - Amendment 12s

Grenzwerte und Meßverfahren für die Funkstöreigenschaften von Rundfunkempfängern und verwandten Geräten der Unterhaltungselektronik

Limites et méthodes de mesure des caractéristiques de perturbations électromagnétiques des récepteurs de radiodiffusion et des appareils associés

Ta slovenski standard je istoveten z: **EN 55013:1990/A12:1994**

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33.100.99	Drugi vidiki v zvezi z EMC	Other aspects related to EMC
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Amendment A12 to the English version of EN 55013

Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment

Limites et méthodes de mesure des caractéristiques de perturbations électromagnétiques des récepteurs de radiodiffusion et des appareils associés

Grenzwerte und Meßmethoden für die Funkstöreigenschaften von Rundfunkempfängern und angeschlossenen Geräten

This amendment A12 modifies the European Standard EN 55013:1990. It was approved by CENELEC on 1993-12-08. 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, 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

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Foreword

This amendment to the European Standard EN 55013:1990 has been prepared by CENELEC Sub-Committee SC 110A, EMC Products.

In October 1992, a draft amendment (prA11) concerning requirements for satellite broadcast receivers was submitted to the Unique Acceptance Procedure (UAP). This draft was approved by CENELEC as amendment A11 to EN 55013 on 1993-07-06.

In April 1993, at the request of CLC/SC 110A, the text of documents CISPR/E(C.O.)60, 61 and 62 was submitted to UAP as prA12. This text was approved by CENELEC as amendment A12 to EN 55013 on 1993-12-08.

CLC/SC 110A has combined the text of the two amendments and adapted it to be read with EN 55013 as amendment A12.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1995-03-01
- latest date of withdrawal of conflicting national standards (dow) 1998-12-31

For products which have complied with EN 55013:1990 before 1995-12-31, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for placing products on the market until 1998-12-31.

For new products placed on the market after 1995-12-31, EN 55013:1990 and its amendment A12:1994 apply.

NOTE: Amendment numbers commencing A1 refer to the endorsement of CISPR amendments, while those commencing A11 originate in CENELEC.

Replace sub-clause 1.2 by

1.2. The frequency range covered is 9 kHz to 18 GHz.

Replace sub-clause 2.1 and 2.2 by

2.1. Sound receivers are appliances intended for the reception of sound broadcast and similar services for terrestrial-, cable and satellite transmissions.

Note: For the purpose of this standard, the VHF band II covers frequencies from 87.5 MHz to 108 MHz.

2.2. Television receivers are appliances intended for the reception of television broadcast and similar services for terrestrial-, cable and satellite transmission.

Note 1: For the purpose of this standard, the following frequency bands are defined:

Band I	from	47 MHz	to	68 MHz
Band III	from	174 MHz	to	230 MHz
Band IV	from	470 MHz	to	598 MHz
Band V	from	598 MHz	to	862 MHz
S-bands	U.C.			
Hyperband	U.C.			

In practice not all television receivers are tunable over these complete frequency ranges. On the other hand many television receivers are tunable over additional channels, exclusively used in cable distribution networks.

Note 2: Modular units which are part of sound or television receiving systems, like tuners, frequency converters, modulators, etc. are considered to be sound or television receivers respectively.

Tuners may be provided with a broadcast-satellite-receiving stage and with demodulators, decoders, demultiplexers, D/A converters, encoders (e.g. PAL encoders) etc.

Frequency converters may be provided with a broadcast-satellite-receiving stage and with devices which convert the signals to other frequency bands.

Receivers, tuners, or frequency converters may be tunable or may only be able to receive a fixed frequency.

Replace table 2 by the following one:

Table 2 - Limits of disturbance voltage at the antenna terminals

Equipment type	Source	Frequency MHz	Limit value dB(μV) 75Ω Quasi-Peak
Television receivers and video recorders working in channels between 30 MHz and 1 GHz	Local-oscillator	30 to 950	Fundamental 46
		950 to 1750	Harmonics 46
			Harmonics 54*)
	Other	30 to 1750	46
Television and sound receivers for broadcast satellite transmission: tuner units at the 1st IF **)	Local-oscillator	30 to 950	Fundamental 46
		950 to 1750	Fundamental 54*)
	Other	30 to 1750	46
Frequency modulation sound receivers	Local-oscillator	30 to 300	Fundamental 54
		300 to 1000	Harmonics 50
			Harmonics 52
	Other	30 to 1000	46
Frequency modulation car radios	Local-oscillator	30 to 300	Fundamental 66
		300 to 1000	Harmonics 59
			Harmonics 52
	Other	30 to 1000	U.C.
LW, MW, SW radio receivers		U.C.	U.C.

*) The value of 54 dB(μV) is intended to be reduced to 46 dB(μV).
**) For tuner units "antenna terminals" means "1st IF input terminals"

Replace table 3 by the following one:

Table 3 - Limits of radiated disturbances

Equipment type	Source	Frequency MHz	Limit value Quasi-Peak in dB(μV/m) or dB(pW)	
Television and VCR with channel frequency ≤ 300 MHz	Local-oscillator	80 to 300	Fundamental	57
		300 to 1000	Harmonics	52
	Other	121.5	Harmonics	56
		243		40
		Other		47
				U.C.
Television and VCR channel frequency fc 300 MHz < fc < 1000 MHz	Local-oscillator	80 to 300	Fundamental	56
		300 to 1000	Harmonics	52
	Other	121.5	Harmonics	56
		243		40
		Other		47
				U.C.
Television and sound receivers for broadcast satellite transmission: tuner units at the 1st IF **)	Local-oscillator	1000 to 3000	Fundamental	57*)
		3000 to 18000		U.C.
	Other	1000 to 3000	Harmonics	57*)
		3000 to 18000		U.C.
		121.5		40
		243		47
		Other		U.C.
Frequency modulation sound receivers	Local-oscillator	80 to 300	Fundamental	60
		300 to 1000	Harmonics	52
	Other	Other	Harmonics	56
				U.C.
LW. MW. SW sound receivers		U.C.		U.C.

*) Limits for frequencies exceeding 1000 MHz are in dB(pW). The limit 57 dB(pW) is in consideration to be replaced by 43 dB(pW).
**) For tuner units "antenna terminals" means "1st IF input terminals"

Add the following new Sub-Clause 3.6:

3.6 WANTED SIGNAL AND DISTURBANCE VOLTAGE AT THE RF OUTPUT TERMINALS OF ASSOCIATED EQUIPMENT. INCLUDING VIDEO RECORDERS.

Measurements of the wanted signal and disturbance voltage at the RF output terminals of video recorders shall be made in accordance with 5.6. If the nominal impedance of the RF output is different from 75Ω, the limit level shall be calculated with the formula given in 3.3.

Table 4A - Limits of the wanted signal and disturbance at RF output terminals of video recorders.

Equipment type	Source	Frequency MHz	Limit values dB(μV) 75 Ω Quasi-Peak
Video recorders working in playback mode	Wanted signal		Carrier-frequencies and sidebands 76
		30 to 950	Harmonics 46
		950 to 1750	Harmonics 54*)
	Other	30 to 1750	46
*) The value of 54 dB(μV) is intended to be reduced to 46 dB(μV).			

Add the following text below the title "5 Methods of measurement".

This clause deals with standardized measurement procedures and measuring equipment.

Deviations from this standard are allowed (e.g. the use of broad-band antennas, the dimensions of the screened room) provided that the measurement results are comparable to those resulting from the standardized method.

In case of controversy the procedure as formulated in this standard shall take precedence.

Note 1: Floor-standing equipment under test shall be placed directly on the floor.

Note 2: The testing procedure for equipment of very large dimensions is under consideration.

In sub-clause 5.2.1.1, replace the luminance value for the magenta part of the test pattern by:

magenta part of the test pattern: 30 cd/m²

and add the following Note before the last paragraph:

Note - The luminance of the magenta part of the test pattern shall be set as close as possible to 30 cd/m². If a value different from 30 cd/m² is used, it shall be stated together with the results.

Insert a new sub-clause 5.5 (and renumber the old sub-clause 5.5 to 5.6)

5.5 RADIATION MEASUREMENTS: 1 GHz TO 18 GHz

5.5.1 TEST ARRANGEMENT

The equipment shall be placed on a turntable at a suitable height. Power at the normal voltage shall be supplied.

5.5.2 RECEIVING ANTENNA

The measurements shall be made with a directive antenna of small aperture capable of making separate measurements of the vertical and horizontal components of the radiated field. The height above the ground of the centre line of the antenna shall be the same as the height of the approximate radiation centre of the equipment under test.

5.5.3 VALIDATION AND CALIBRATION OF TEST SITE

The validation and calibration of the test site shall be made by a radiation-substitution method. This is carried out in two stages.

Firstly, the suitability of the site shall be determined as follows. A transmitting antenna shall be mounted at the position where it is intended that the approximate radiation centre (usually the volume centre) of the equipment under test is to be placed. The transmitting antenna shall have the same radiation properties as a half-wave dipole. In the case of different radiation properties (e.g. a horn antenna) correction factors must be taken into account with respect to a half-wave dipole. The receiving antenna shall be placed at the same position as that chosen for the actual measurements. The two antennas shall be placed so that they have the same polarization which shall be perpendicular to an imaginary line between them. Tests shall be made in the horizontal and vertical polarization planes.

The site shall be considered suitable for the purpose of measurement at a test frequency if the indication on the measuring set changes by no more than 1.5 dB when the centre of the transmitting antenna is moved 0 cm to 15 cm in any direction from its initial position.

Secondly, to validate the calibration for each test frequency, the transmitting and receiving antennas shall be positioned in the same (initial) position as above, the transmitting antenna being fed by signal with enough power to give a suitable reading on the measuring set. The relationship between the reading on the measuring set and the input power to the transmitting antenna under matched conditions gives a conversion factor. By means of this factor, any reading of the measuring set is converted to the substituted power.

5.5.4 MEASURING PROCEDURE

Measurement shall be made with the antenna having both horizontal and vertical polarizations and the turntable with the appliances under test shall be rotated. The highest level of radiation measured shall be the characteristic level at that measuring frequency. It shall be ascertained that, when the apparatus under test is switched off, the level of background noise is at least 10 dB below the reference limit, otherwise the reading may be significantly affected.

Add the following new sub-clause 5.7

5.7 MEASUREMENT OF THE WANTED SIGNAL AND DISTURBANCE VOLTAGE AT THE RF OUTPUT TERMINALS OF VIDEO RECORDERS, IN THE FREQUENCY RANGE 30 MHz TO 1,75 GHz

5.7.1 INTRODUCTION

If a video recorder is intended to be connected to the antenna terminals of a television receiver, additional measurements of the wanted signal level and disturbance voltage at its RF output terminals shall be performed. The reason is that a too high level of the RF output signal or its harmonics can be radiated from the combination of the video recorder and television receiver causing interference in the neighbourhood.

5.7.2 METHOD OF MEASUREMENT

The RF output of the video recorder under test is connected to the input of the measuring set by means of a coaxial cable and a matching network (if necessary) as shown in figure 10. The characteristic impedance of the cable shall be equal to the nominal output impedance of the video recorder under test.