



SLOVENSKI STANDARD

SIST HD 567.6 S1:1999

01-julij-1999

Recommended methods of measurement on receivers for television broadcast transmissions - Part 6: Measurements under conditions different from broadcast signal standards (IEC 60107-6:1989)

Recommended methods of measurement on receivers for television broadcast transmissions -- Part 6: Measurements under conditions different from broadcast signal standards

Empfohlene Meßverfahren an Empfängern für Fernseh Rundfunksendungen -- Teil 6: Meßverfahren unter Bedingungen, die von den Normen für Rundfunksignale abweichen

Méthodes recommandées pour les mesures sur les récepteurs de télévision -- Partie 6: Mesures dans des conditions différentes des normes de signaux pour la radiodiffusion

Ta slovenski standard je istoveten z: HD 567.6 S1:1990

ICS:

33.160.25 Televizijski sprejemniki Television receivers

SIST HD 567.6 S1:1999 en

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HD 567.6 S1

July 1990

ENGLISH VERSION

UDC: 621.397.13:621.317

Descriptors: Television receiver, television broadcasting, colour television, measuring method, characteristic, signal, specification

RECOMMENDED METHODS OF MEASUREMENT ON RECEIVERS
FOR TELEVISION BROADCAST TRANSMISSIONS
PART 6: MEASUREMENT UNDER CONDITIONS DIFFERENT
FROM BROADCAST SIGNAL STANDARDS

Méthodes recommandées pour les
mesures sur les récepteurs de
télévision
Sixième partie: Mesures dans des
conditions différentes des normes
de signaux pour la radiodiffusion

Empfohlene Meßverfahren
an Empfängern für
Fernsehrundfunksendungen
Teil 6: Meßverfahren unter
Bedingungen, die von den Normen
für Rundfunksignale abweichen

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BODY OF THE HD

The Harmonization Document consists of:

- IEC 107-6 (1989) ed 1; IEC/SC 12A, not appended
- <https://standards.iteh.ai/catalog/standards/sist/4809361-b7fa-4805-8094-80c6b80da420/sist-hd-567-6-s1-1999>

This Harmonization Document was approved by CENELEC on 1990-05-01.

The English and French versions of this Harmonization Document are provided by the text of the IEC publication and the German version is the official translation of the IEC text. The German translation is not yet available.

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NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC
107-6

Première édition
First edition
1989-01

**Méthodes recommandées pour les mesures
sur les récepteurs de télévision**

Sixième partie:

Mesures dans des conditions différentes des
normes de signaux pour la radiodiffusion
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**Recommended methods of measurement
on receivers for television broadcast
transmissions**

Part 6:

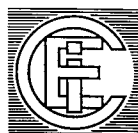
Measurement under conditions different
from broadcast signal standards

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RECOMMENDED METHODS OF MEASUREMENT ON RECEIVERS
FOR TELEVISION BROADCAST TRANSMISSIONS**

**Part 6: Measurement under conditions different from broadcast
signal standards**

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

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PREFACE

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This standard has been prepared by Sub-Committee 12A: Receiving equipment, of IEC Technical Committee No. 12: Radiocommunications.

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This standard forms Part 6: Measurement under conditions different from broadcast signal standards, of IEC Publication 107: Recommended methods of measurement on receivers for television broadcast transmissions. The following parts of the standard have already been published:

- Part 1: General considerations. Electrical measurements other than those at audio-frequencies (1977).
- Part 2: Electrical and acoustic measurements at audio-frequencies (1980).
- Part 3: Electrical measurements on multichannel sound television receivers using subcarrier systems (1988).
- Part 4: Electrical measurements on multichannel sound television receivers using the two-carrier FM-system (1988).

Additional parts will be published later to complete the series.

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

Six Months' Rule	Report on Voting
12A(CO)121	12A(CO)127

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

The following IEC publication is quoted in this standard:

Publication No. 50(704): International Electrotechnical Vocabulary (IEV), Chapter 704: Transmission. (In preparation.)

RECOMMENDED METHODS OF MEASUREMENT ON RECEIVERS FOR TELEVISION BROADCAST TRANSMISSIONS

Part 6: Measurement under conditions different from broadcast signal standards

CHAPTER I: GENERAL

SECTION ONE — INTRODUCTION

1. Scope

This part of Publication 107 gives methods of measurement for television broadcast receivers under conditions in which the signal presented to the receiver is not in accordance with the specifications for broadcast signals adopted by the CCIR*. Such non-standard signals may be produced by video tape recorders, video disc players and television games, among other sources. Non-standard signal conditions which can also arise in normal reception of broadcast signals, for example due to propagation effects, are dealt with in Publication 107, Parts 1 and 2.

The methods of measurement given in this part are, where possible, based on the equivalent methods described in Publication 107, Parts 1 and 2, to which reference is required. However, the measurement conditions may be modified to accommodate the relevant non-standard input signals. This part is not concerned with specifying performance.

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2. Object

This part of Publication 107 specifies methods of measurement for those characteristics of broadcast television receivers using existing technology which have been found, by experience of the nature of signals produced by existing types of ancillary equipment and systems, to be significant in determining their mutual compatibility.

It is not possible to predict the nature of signals which may be produced by equipment of new design or that uses new technology, nor the relevant characteristics of new types of receiver.

This part of the standard, therefore, does not imply that any aspect of receiver performance, determined by the specified methods of measurement, will ensure compatibility between a receiver and a given source of signals not complying with the relevant broadcast standard.

SECTION TWO — EXPLANATION OF TERMS

3. Definitions

The following definitions apply for the purpose of this standard:

* CCIR: International Radio Consultative Committee.

3.1 *Inaccuracy*

A condition different from the rated or standard conditions of frequency, level or modulation factor, etc.

3.2 *Fluctuation*

A fluctuating condition of frequency, level, etc. over time from the reference value.

4. **Standard measuring conditions**

Unless otherwise stated, all measurements shall be carried out under the conditions specified in IEC Publications 107-1 and 107-2. The standard measuring conditions, referred to in this part, are those described in Publication 107-1, Sections Eight, Nine and Ten. For certain measurements, input levels other than -50 dB (mW) may be used.

CHAPTER II: NON-STANDARD SIGNAL CONDITIONS AFFECTING THE TUNER, VIDEO I.F. AND SOUND CHANNEL

SECTION THREE — TUNING RANGE ACCOMMODATION FOR NON-STANDARD CARRIER FREQUENCIES

5. **Introduction**

The tuning range is the range of the operating frequency over which the fine tuning mechanism is capable of adjustment. The measurement is primarily of interest for step tuning systems. For some automatic tuning systems the measurement is not applicable.

6. **Method of measurement**

The receiver shall be put under standard measuring conditions with an input signal modulated by a test pattern (see IEC Publication 107-1, Sub-clause 3.16).

When the receiver is equipped with an automatic local oscillation frequency control circuit, the circuit shall be made inoperable, when possible (see note). The local oscillation frequency shall then be measured and the measurement repeated when the fine tuning control is positioned at its upper and lower limits.

Note. — Some receivers incorporate a.f.c. which cannot be disabled without seriously affecting the operation of the local oscillator.

7. **Presentation of results**

The results are tabulated by obtaining, for each tuning frequency, the difference between the oscillation frequency at the tuned point and the oscillation frequencies at the two extreme points of the fine tuning control setting. The differences are expressed using plus and minus signs.

SECTION FOUR — SELECTIVITY WITH OFFSET PICTURE CARRIER FREQUENCY

8. **Introduction**

The carrier frequencies, from non-broadcast sources, may be offset by amounts up to about 2 MHz from the standard frequency.

Theoretically, continuous tuning systems should be able to accept the offset but step tuning systems may not.

When the sound carrier level is low the audio signal-to-noise ratio is reduced, while a higher level may cause beat patterns to appear on the picture.

This measurement determines the capability of the receiver to accommodate such signals.

15. Method of measurement

The receiver shall be put under standard measuring conditions with a television signal modulated by a colour bar pattern applied to the input. The input signal available power level shall be -40 dB (mW) unless otherwise stated. The sound carrier shall be 30% modulated at 1 kHz.

The picture shall be observed for beats while the picture-to-sound ratio is varied.

Note. — The input signal level is set at -40 dB (mW) because the measured values fluctuate greatly when A.G.C. operation starting-point is at the input signal level of -50 dB (mW).

16. Presentation of results

The type of interference and the picture-to-sound ratio at which this interference becomes just visible shall be recorded.

SECTION SEVEN — EFFECT OF SIGNAL LEVEL FLUCTUATION ON THE A.G.C.

17. Method of measurement

The receiver shall be measured using the method described in Publication 107-1, Sections Forty-one and Forty-two.

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SECTION EIGHT — PRIMARY COLOUR CHANNEL AMPLITUDE FLUCTUATION

18. Method of measurement

The measurement method described in Publication 107-1, Section Forty-four shall be used.

SECTION NINE — SOUND DISTORTION DUE TO INACCURATE SOUND CARRIER FREQUENCY

19. Method of measurement

The receiver shall be put under the standard measuring conditions with a television signal modulated by a test pattern applied to the input. Sound modulation shall be adjusted to 80% modulation or deviation at 1 kHz and the receiver volume control set to obtain a reference audio output (see Publication 107-2, Section Four). The shifted values of the sound carrier frequency at which sound distortion becomes 10% shall be measured. The measurement shall be carried out on the representative number of channels listed in Publication 107-1, Sub-clause 3.22.

20. Presentation of results

The frequencies at which the distortion becomes 10% shall be stated (see Table I, page 55).

SECTION TEN — SOUND OUTPUT AND SIGNAL-TO-NOISE RATIO AS A FUNCTION OF PICTURE-TO-SOUND RATIO

21. Method of measurement

The receiver shall be put under the standard measuring conditions with a television signal modulated by a test pattern applied to the input.

The input signal shall be set at -40 dB (mW).

The picture-to-sound ratio shall be the standard value for the relevant system. Both the sound output and the noise output, obtained when the sound modulation is switched off, shall be measured (see Publication 107-2, Clause 61).

The same measurement shall then be made using different picture-to-sound ratios on a representative number of channels (see Publication 107-1, Sub-clause 3.22).

Note. — The input signal level is set at -40 dB (mW) because the measured values fluctuate greatly when A.G.C. operation starting-point is at the input signal level of -50 dB (mW).

22. Presentation of results

The results of the measurement shall be presented graphically. The picture-to-sound ratio shall be plotted on the abscissa, and the signal-to-noise ratio on the ordinate, both in decibels. An example is shown in Figure 2.

SECTION ELEVEN — SOUND SIGNAL-TO-NOISE RATIO IN RELATION TO PICTURE MODULATION FACTOR

23. Introduction

In some home video tape recorders, the simplified television signal generator delivers output at a picture modulation factor different from the broadcasting standard. Many of them produce the output at a lower picture modulation factor, but sometimes they deliver overmodulated output due to variation of the picture modulation factors.

This measurement determines the signal-to-noise ratio of sound in relation to the picture modulation factor.

24. Method of measurement

The receiver shall be put under standard measuring conditions with inputs of a white video signal (see Publication 107-1, Sub-clause 3.2) as the picture modulation, and 100% (FM) or 80% (AM) modulation factors for the sound channel. The sound signal output is measured for reference. Next, the sound modulation is switched off and the noise level measured (see Publication 107-2, Clause 61).

Then the sound signal-to-noise ratio is measured at different picture modulation factors.

25. Presentation of results

The results shall be presented graphically as shown in Figure 3. The signal-to-noise ratio shall be plotted on the ordinate in decibels and the picture modulation level shall be plotted on the abscissa in percentage.

SECTION TWELVE — SOUND DISTORTION DUE TO INACCURATE SOUND MODULATION FACTOR

26. Introduction

In some home video tape recorders, the r.f. converter delivers the output at a sound modulation factor different from the broadcasting standard. The generator, for example, sometimes delivers an instantaneous 200% overmodulation in FM modulation.

This measurement determines sound distortion due to overmodulation of the sound carrier.

27. Method of measurement

The distortion shall be measured while increasing the sound modulation factor up to 200% in FM modulation and up to 80% in AM modulation, or until the distortion exceeds 10%. The measurement shall be repeated with 5 kHz modulation frequency.

The distortion measurement is described in Clause 40, Sub-clause 41.2 and Clause 42 of Section Twelve of Publication 107-2.

CHAPTER III: INACCURACIES AFFECTING THE SCAN SYNCHRONIZATION PERFORMANCE AND RELATED FUNCTIONS

SECTION THIRTEEN — LINE SYNCHRONIZATION CATCH AND HOLD RANGE

28. Introduction

On some household video equipment, the synchronizing frequencies may deviate from the broadcast signal standard. This measurement examines the catch and hold range of line synchronization.

29. Method of measurement

The receiver shall be measured according to Publication 107-1, Clause 93, using the method given in paragraph 3.

SECTION FOURTEEN — HORIZONTAL DISPLACEMENT DUE TO INACCURATE LINE SYNCHRONIZING SIGNAL FREQUENCY

30. Introduction

The measurement measures the horizontal displacement of the picture, due to phase error in the line synchronizing signal, when the receiver is synchronized.

31. Method of measurement

The receiver shall be measured according to the method described in Publication 107-1, Clause 98, starting with the line scan frequency at its standard value. The line frequency is then shifted up and down to determine the displacement as a function of frequency.