SLOVENSKI STANDARD
SIST EN 60244-11:1999

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Methods of measurement for radio transmitters - Part 11: Transposers for FM sound broadcasting (IEC 60244-11:1989)

Methods of measurement for radio transmitters -- Part 11: Transposers for FM sound broadcasting

Meßverfahren für Funksender -- Teil 11: Umsetzer für FM-Tonrundfunk

Méthodes de mesure applicables aux émetteurs radioélectriques -- Partie 11: Réémetteurs pour la radiodiffusion sonore à modulation de fréquence

Ta slovenski standard je istoveten z: **EN 60244-11:1993**

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ENGLISH VERSION

Methods of measurement for radio transmitters Part 11: Transposers for FM sound broadcasting (IEC 244-11:1989)

Méthodes de mesure applicables aux émetteurs radioélectriques Onzième partie: Réémetteurs pour la radiodiffusion sonore à modulation de fréquence
(CEI 244-11:1989)

Meßverfahren für Funksender Teil 11: Umsetzer für FM-Tonrundfunk

(IEC 244-11:1989)

This European Standard was approved by CENELEC on 1993-03-09. 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, 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

At the request of 72nd Technical Board, HD 236.11 S1:1990 (IEC 244-11:1989) was submitted to the CENELEC voting procedure for conversion into a European Standard.

The text of the International Standard was approved by CENELEC as EN 60244-11 on 9 March 1993.

The following dates were fixed:

- latest date of publication of an identical national standard	(dop)	1994-06-01
- latest date of withdrawal of conflicting national standards	(dow)	-

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 244-11:1989 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
244-1	1968	Methods of measurement for radio transmitters - Part 1: General conditions of measurement, frequency, output power and power consumption	HD 236.1 S1*	1977
244-1A	1968	First supplement: Appendices	*	
244-2	1969	Part 2: Bandwidth, out-of-band power and power of non-essential oscillations	HD 236.2 S1**	1977
244-2A	1969	First supplement: Appendices	**	
244-2B	1969	Second supplement: Modulating signals for the measurement of bandwidth and out-of-band power of transmitters for telephony and sound broadcasting	**	
244-3	1972	Part 3: Wanted and unwanted modulation	HD 236.3 S1***	1977
244-3A	1971	First supplement: Appendices	***	
244-3B	1972	Second supplement: Unwanted modulation, including hum and noise modulation	***	
244-4	1973	Part 4: Amplitude/frequency characteristics and non-linearity distortion in transmitters for radiotelephony and sound broadcasting	HD 236.4 S2****	1978
244-12	1989	Part 12: Guideline for drawing up descriptive leaflets for transmitters and transposers for sound and television broadcasting	EN 60244-12	1993
487-1	1984	Methods of measurement for equipment used in terrestrial radio-relay systems Part 1: Measurements common to sub-systems and simulated radio-relay systems	HD 477.1 S1	1987

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* HD 236.1 S1 is based on IEC 244-1:1968 + A1:1973 + IEC 244-1A:1968 + A1:1973

** HD 236.2 S1 is based on IEC 244-2:1969 + A1:1974 + IEC 244-2A:1969 + A1:1973 + IEC 244-2B:1969

*** HD 236.3 S1 is based on IEC 244-3:1972 + IEC 244-3A:1971 + IEC 244-3B:1972

**** HD 236.4 S4 is based on IEC 244-4:1973 + IEC 244-4A:1976

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Methods of measurement for radio transmitters

Part 11: Transposers for FM sound broadcasting

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

METHODS OF MEASUREMENT FOR RADIO TRANSMITTERS

Part 11: Transposers for FM sound broadcasting

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.

PREFACE

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

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

Six Months' Rule	Report on Voting
12C(CO)203	12C(CO)209

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

The following IEC Publications are quoted in this standard:

Publications Nos.:
244 : Methods of measurement for radio transmitters.
244-1 (1968) : Part 1: General conditions of measurement, frequency, output power and power consumption.
244-1A (1968) : First supplement: Appendices.
244-2 (1969) : Part 2: Bandwidth, out-of-band power and power of non-essential oscillations.
244-2A (1969) : First supplement: Appendices.
244-2B (1969) : Second supplement: Modulating signals for the measurement of bandwidth and out-of-band power of transmitters for telephony and sound broadcasting.
244-3 (1972) : Part 3: Wanted and unwanted modulation.
244-3A (1971) : First supplement: Appendices.
244-3B (1972) : Second supplement: Unwanted modulation, including hum and noise modulation.
244-4 (1973) : Part 4: Amplitude/frequency characteristics and non-linearity distortion in transmitters for radiotelephony and sound broadcasting.
244-12 (1989) : Guidelines for drawing up descriptive leaflets for transmitters and transposers for sound and television broadcasting.
487-1 (1984) : Methods of measurement for equipment used in terrestrial radio-relay systems, Part 1: Measurements common to sub-systems and simulated radio-relay systems.

METHODS OF MEASUREMENT FOR RADIO TRANSMITTERS

Part 11: Transposers for FM sound broadcasting

INTRODUCTION

This standard is one of a series of parts of IEC Publication 244, describing recommended methods of measurement for assessing the performance of radio transmitters.

A number of the existing parts of IEC Publication 244 are currently under review and several of the older parts will be revised or withdrawn. When this process is complete, the overall publication will comprise one part dealing with general characteristics, with cross-references to relevant CCIR publications and the Radio Regulations, and a number of specialist parts, each dealing with a particular type of transmitter.

This new part, therefore, incorporates all recommended measurements for FM sound broadcasting transposers in a single publication and supersedes all clauses dealing with FM broadcasting transposers in the following publications:

Publication 244-2, first edition, 1969
Publication 244-2A, first edition, 1969
Publication 244-2B, first edition, 1969
Publication 244-3, first edition, 1972
Publication 244-3A, first edition, 1971
Publication 244-3B, first edition, 1972
Publication 244-4, first edition, 1973

1. Scope

This standard applies to transposers, as defined in Clause 3, operating in accordance with current CCIR Recommendation 450 for FM sound broadcasting at VHF, including stereophony. It also covers requirements for other multiplexed subcarrier services.

2. Object

This standard lays down detailed methods of measurements, selected and recommended for assessing the essential performance and general characteristics of FM sound broadcasting transposers. It is not mandatory to measure all the defined characteristics. Fewer or additional measurements may be appropriate. Any additional measurements should preferably be in accordance with relevant standards published by the IEC or by other international bodies.

Limiting values for acceptable performance are not specified, as these are normally given in the equipment specification, or in requirements laid down by the responsible regulating bodies.

This standard shall be used in conjunction with IEC Publications 244-1 and 244-1A (now being revised) or, in due course, with the future edition replacing these publications.

For guidance on the information to be given in descriptive leaflets particular to the type of equipment considered in this standard, refer to the relevant sections of IEC Publication 244-12.

The methods of measurement described in this standard are intended for type tests but they may also be used for acceptance tests and factory tests. (See IEC Publication 244-1 for the meaning of these terms.)

SECTION ONE - GENERAL CONDITIONS OF OPERATION AND MEASUREMENT

3. Definition

The term "FM sound broadcasting transposer" is used in this standard to refer to that equipment in an FM sound broadcasting relay station which is connected between the feeder terminations of the receiving antenna and the transmitting antenna, and in which a frequency transposition is performed without demodulation. The majority of the measurements apply also to a receiver/transmitter combination.

Any device for the suppression of unwanted signals, irrespective of whether or not it is located inside the transposer, shall be considered to be part of the transposer for the purpose of this standard.

4. Input and output signal arrangement

For the purpose of measurement, the transposer can be considered in terms of input and output characteristics, and of transmission performance.

Depending on the particular measurements, one of the three measuring arrangements described below may be employed. Details of the arrangements are given in Figures 1, 2 and 3.

The modulating signals for the test transmitters in Figures 1 to 3 shall be provided by:

- one or more baseband (audio) signal generators,
- a high quality stereo coder of specified characteristics,
- auxiliary devices for the supplementary multiplexed subcarrier services, if required.

All measurements concerning transmission performance are carried out with baseband signals at the output of the test demodulator or, for some stereo tests, at the output of a high quality stereo decoder.

Because the results of these measurements are critically dependent on the performance of the test equipment, it is necessary first to check the overall performance of the test equipment in the absence of the transposer.

5. General conditions regarding input signal source and test load

5.1 *Input signal source*

The rated load impedance of the test transmitter shall be equal to the nominal input impedance of the transposer over the whole FM broadcasting band.