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Methods of measurement of equipment used in terrestrial radio-relay systems - Part  
3: Simulated systems - Section 2: Measurements in the baseband

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ENGLISH VERSION

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KEY WORDS: Terrestrial radio-relay systems; baseband measurements

METHODS OF MEASUREMENT FOR EQUIPMENT USED IN  
TERRESTRIAL RADIO-RELAY SYSTEMS  
PART 3: SIMULATED SYSTEMS  
SECTION TWO - MEASUREMENTS IN THE BASEBAND

Méthodes de mesure applicables  
au matériel utilisé dans les  
faisceaux hertziens terrestres  
Troisième partie: Liaisons simulées  
Section deux - Mesures en bande  
de base

Meßverfahren für  
Geräte in terrestrischen  
Richtfunksystemen  
Teil 3: Simulierte Systeme  
Hauptabschnitt zwei: Messungen  
im Basisband

BODY OF THE HD

The Harmonization Document consists of:

- IEC 487-3-2 (1981) ed 1, IEC/SC 12E, not appended

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This Harmonization Document was approved by CENELEC on 1988-09-13.

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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.

According to the CENELEC Internal Regulations the CENELEC member National Committees are bound:

to announce the existence of this Harmonization Document at national level  
by or before 1989-04-01

to publish their new harmonized national standard  
by or before 1989-10-01

to withdraw all conflicting national standards  
by or before 1989-10-01.

Harmonized national standards are listed on the HD information sheet,  
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**Méthodes de mesure applicables au matériel  
utilisé dans les faisceaux hertziens terrestres**

Troisième partie : Liaisons simulées

Section deux — Mesures en bande de base

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**Methods of measurement for equipment  
used in terrestrial radio-relay systems**

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**Mots clés:** faisceaux hertziens terrestres;  
mesures en bande de base.

**Key words:** terrestrial radio-relay systems;  
baseband measurements.



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**METHODS OF MEASUREMENT FOR EQUIPMENT  
USED IN TERRESTRIAL RADIO-RELAY SYSTEMS****Part 3: Simulated systems****Section Two – Measurements in the baseband**

## 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 12E: Microwave Systems, of IEC Technical Committee No. 12: Radiocommunications.

A draft was discussed at the meeting in Berlin in 1973. As a result of that meeting, Document 12E(Central Office)17 was circulated to National Committees for approval under the Six Months' Rule in August 1974.

The following countries voted explicitly in favour of publication:

Australia	Netherlands
Belgium	Poland
Denmark	Romania
Egypt	Sweden
France	Switzerland
Germany	Turkey
Hungary	United Kingdom
Italy	United States of America

It was later decided, however, to delay publication of this section in order to align certain clauses with those in preparation for associated sections of Parts 1 and 2 of Publication 487.

# METHODS OF MEASUREMENT FOR EQUIPMENT USED IN TERRESTRIAL RADIO-RELAY SYSTEMS

## Part 3: Simulated systems

### SECTION TWO – MEASUREMENTS IN THE BASEBAND

#### 1. Scope

This section deals with baseband measurements on simulated radio-relay systems and is concerned with those measurements which are not directly related to the particular type of signal actually being transmitted, e.g. frequency division multiplex (f.d.m.) telephony or television. The baseband measurements to be described are carried out typically at the modulator input and demodulator output ports, where these are accessible, and exclude auxiliary terminal equipment, such as pre-emphasis and de-emphasis networks, which are associated with a particular type of baseband signal.

Measurements of random, periodic and impulsive noise are not included in this section because meaningful assessment of these noise levels is possible only by relating them to particular baseband signals and by using the appropriate de-emphasis and weighting networks. Measurements relating to f.d.m. telephony, television and sound-programme transmission are given in the appropriate sections of this part of the publication.

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#### 2. Measurements

The following are commonly applied measurements:

- Linear input and output properties: SIST HD 477.3.2 S1:2002  
https://standards.iteh.ai/catalog/standards/sist/279d5717-5c49-4f99-bc44-9635d8b623d0/iec-477-3-2-1981 input and output impedances,  
input and output levels.
- Linear transfer properties: amplitude/and group-delay/baseband frequency characteristics.
- Non-linear transfer properties: differential gain/non-linearity,  
differential phase/group-delay.
- Stand-by switching characteristics.

Before commencing these measurements, the individual parts of the simulated radio-relay system should be properly aligned and connected. In particular, all relevant impedances, levels and deviations in the baseband, i.f. and r.f. parts should be checked in accordance with the methods given in the appropriate sections of Part 1 of this publication. For details concerning power supply and environmental conditions, refer to Part 1, Section One of this publication: General.

#### 3. Impedances and levels

Impedances and levels should be measured at all input and output ports of the simulated system under test. Appropriate methods of measurement are given in Part 1, Section Four of this publication: Measurements in the Baseband.

#### 4. Linear transfer properties

Amplitude/and group-delay/baseband frequency characteristics should be measured in accordance with Part 1, Section Four of this publication. Above a certain baseband level, these characteristics become increasingly dependent upon input level and they should, therefore, be measured at or below the point at which the characteristics start to change: measurements may be made at higher levels provided that the results are suitably interpreted.

#### 5. Non-linear transfer properties

Differential gain/non-linearity distortion and differential phase/group-delay distortion should be measured in accordance with Part 1, Section Four of this publication.

#### 6. Stand-by switching characteristics

Covered in Part 2, Section Two of this publication: Measurements for Stand-by Channel Switching Equipment.

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