

SLOVENSKI STANDARD
SIST EN 60835-1-4:2002/A1:2002
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Methods of measurement for equipment used in digital microwave radio transmission systems - Part 1: Measurements common to terrestrial radio-relay systems and satellite earth stations - Section 4: Transmission performance - Amendment A1 (IEC 60835-1-4:1992/A1:1995)

Methods of measurement for equipment used in digital microwave radio transmission systems -- Part 1: Measurements common to terrestrial radio-relay systems and satellite earth stations -- Section 4: Transmission performance

iTeh STANDARD PREVIEW

Meßverfahren für Geräte in digitalen Mikrowellen-Funkübertragungssystemen -- Teil 1: Messungen an terrestrischen Richtfunksystemen und Satelliten-Erdfunkstellen -- Hauptabschnitt 4: Übertragungsqualität

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Méthodes de mesure applicables au matériel utilisé pour les systèmes de transmission numérique en hyperfréquence -- Partie 1: Mesures communes aux faisceaux hertziens terrestres et aux stations terriennes de télécommunications par satellite -- Section 4: Qualité de transmission

Ta slovenski standard je istoveten z: EN 60835-1-4:1995/A1:1995

ICS:

33.060.30	Radiorelejni in fiksni satelitski komunikacijski sistemi	Radio relay and fixed satellite communications systems
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SIST EN 60835-1-4:2002/A1:2002 **en**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60835-1-4/A1

March 1995

UDC 621.396.6:620.1:621.317.08
ICS 33.060.30

EC/SC10F

Descriptors: Radiocommunications, telecommunications, satellite broadcasting, communication equipment, earth stations, radio-relay systems, microwave frequencies, characteristics, measurements, transmissions, quality

English version

**Methods of measurement for equipment used in digital
microwave radio transmission systems**
**Part 1: Measurements common to terrestrial radio-relay systems
and satellite earth stations**
Section 4: Transmission performance
(IEC 835-1-4:1992/A1:1995)

Méthodes de mesure applicables au matériel utilisé pour les systèmes de transmission numérique en hyperfréquence

Partie 1: Mesures communes aux faisceaux hertziens terrestres et aux stations terriennes de télécommunications par satellite
Section 4: Qualité de transmission
(CEI 835-1-4:1992/A1:1995)

Meßverfahren für Geräte in digitalen Mikrowellen-Funkübertragungssystemen
Teil 1: Messungen an terrestrischen Richtfunksystemen und Satelliten-Erdfunkstellen
Hauptabschnitt 4: Übertragungsqualität
(IEC 835-1-4:1992/A1:1995)

This amendment A1 modifies the European Standard EN 60835-1-4:1995; it was approved by CENELEC on 1995-03-06. 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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 12E(CO)165, future amendment 1 to IEC 835-1-4:1992, prepared by SC 12E, Radio-relay and satellite communications systems, of IEC TC 12, Radiocommunications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60835-1-4:1995 on 1995-03-06.

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) 1996-03-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-03-01

Endorsement notice

The text of amendment 1:1995 to the International Standard IEC 835-1-4:1992 was approved by CENELEC as an amendment to the European Standard without any modification.

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NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC

60835-1-4

1992

AMENDEMENT 1
AMENDMENT 1

1995-01

Amendement 1

**Méthodes de mesure applicables au matériel
utilisé pour les systèmes de transmission
numérique en hyperfréquence**

Partie 1:

Mesures communes aux faisceaux hertziens
terrestres et aux stations terriennes de
télécommunications par satellite

Section 4: Qualité de transmission

Amendment 1

**Methods of measurement for equipment used
in digital microwave radio transmission systems**

Part 1:

Measurements common to terrestrial radio-relay
systems and satellite earth stations

Section 4: Transmission performance

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Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembe Genève, Suisse



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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FOREWORD

This amendment has been prepared by sub-committee 12E: Radio relay and fixed satellite communications systems, of IEC technical committee 12: Radiocommunications.

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

DIS	Report on voting
12E(CO)165	12E/243/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.

Page 3

CONTENTS

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After clause 3 add the following *(subclause title:* standards.iteh.ai)

3.1 *Residual bit-error ratio*

[SIST EN 60835-1-4:2002/A1:2002](https://standards.iteh.ai/catalog/standards/sist/b84c1a2b-75f4-47ef-a9bf-e70215934ffb/sist-en-60835-1-4-2002-a1-2002)

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Page 13

3 Additional parameters

Delete the existing text and replace by the following:

This clause describes residual bit-error ratio. Other additional parameters remain under consideration by other international organizations.

3.1 *Residual bit-error ratio*

3.1.1 *Definition and general considerations*

Residual bit-error ratio (RBER) for digital microwave radio transmission systems is an indispensable factor to guarantee the system performance.

NOTE – The RBER is the error ratio in the absence of fading and includes allowance for system-inherent errors, environmental and ageing effects and long-term interference.

The RBER should be measured with the equipment under test operating under normal conditions. An integration time should be chosen using a value given by equation (3-2) in 3.2. The BER measurements are carried out repeatedly with the fixed integration time and the RBER may be defined as the highest BER not exceeded in a specified percentage of integration intervals. The BER measurement period of one day may be appropriate.

3.1.2 *Method of measurement*

The RBER is obtained by taking BER measurements (see clause 2) over a long period, e.g. 24 h, using a long integration time, e.g. 15 min. These examples are related for systems with a capacity of about 100 Mbit/s and an RBER of 1×10^{-10} .

In case of terrestrial radio-relay systems, the measurements should be carried out with long-term interference, if required, in the absence of fading (see IEC 835-2-10). In the case of satellite communication systems, a high carrier-to-noise ratio condition should be applied (see IEC 835-3-12).

The measuring of the BER shall be recorded in order to obtain the highest BER not exceeded in a specified percentage of integration intervals. It is advisable to record the power supply voltage and room temperature, etc., at the same time as the BER, in order to identify any causes of error and to discard incorrect measurements produced by environmental effects which would not happen in a real link.

3.1.3 *Presentation of results* (standards.iteh.ai)

The residual bit-error ratio shall be expressed as the highest BER not exceeded in a specified percentage of integration intervals.

3.1.4 *Details to be specified*

The following items should be included, as required, in the detailed equipment specification:

- a) ports between which the measurements are to be made;
- b) main interface conditions such as bit-rate, level, impedance and code format;
- c) receiver input level;
- d) type and length of the test pattern;
- e) integration time (e.g. 15 min), percentage of integration time intervals in order to discard periods with incorrect measurements during factory tests or fading periods during field tests;
- f) permitted residual bit-error ratio for the specified percentage of integration time intervals;
- g) total measurement time (e.g. 24 h).