



SLOVENSKI STANDARD

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Methods of measurement for equipment used in digital microwave radio transmission systems - Part 3: Measurements on satellite earth stations - Section 13: VSAT systems (IEC 60835-3-13:1996)

Methods of measurement for equipment used in digital microwave radio transmission systems -- Part 3: Measurements on satellite earth stations -- Section 13: VSAT systems

Meßverfahren für Geräte in digitalen Mikrowellen-Funkübertragungssystemen -- Teil 3: Messungen an Satelliten-Erdfunkstellen -- Hauptabschnitt 13: VSAT-Systeme

Méthodes de mesure applicables au matériel utilisé pour les systèmes de transmission numérique en hyperfréquence -- Partie 3: Mesures applicables aux stations terriennes de télécommunications par satellite -- Section 13: Systèmes VSAT

Ta slovenski standard je istoveten z: EN 60835-3-13:1996

ICS:

33.060.30	Radiorelejni in fiksni satelitski komunikacijski sistemi	Radio relay and fixed satellite communications systems
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EUROPEAN STANDARD
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Descriptors: Telecommunications, radiocommunications, communication equipment, earth station, microwave frequencies, digital technics, measurements, characteristics

English version

**Methods of measurement for equipment used in
digital microwave radio transmission systems
Part 3: Measurements on satellite earth stations
Section 13: VSAT systems
(IEC 835-3-13:1996)**

Méthodes de mesure applicables
au matériel utilisé pour les systèmes
de transmission numérique en
hyperfréquence
Partie 3: Mesures applicables aux
stations terriennes de
télécommunications par satellite
Section 13: Systèmes VSAT
(CEI 835-3-13:1996)

Meßverfahren für Geräte in digitalen
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Satelliten-Erdfunkstellen
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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.

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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/237/FDIS, future edition 1 of IEC 835-3-13, prepared by SC 12E, Radio-relay and fixed satellite communication systems, of IEC TC 12, Radiocommunications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60835-3-13 on 1996-07-02.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1997-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-04-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annex A is informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 835-3-13:1996 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications
with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 835-1-2	1992	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 2: Basic characteristics	EN 60835-1-2	1993
IEC 835-1-4	1992	Section 4: Transmission performance	EN 60835-1-4	1995
IEC 835-3-2	1995	Part 3: Measurements on satellite earth stations Section 2: Antenna	EN 60835-3-2	1996
IEC 835-3-7	1995	Section 7: Figure-of-merit of receiving system	EN 60835-3-7	1995
CISPR 22 (mod)	1985	Limits and methods of measurement of radio interference characteristics of information technology equipment	EN 55022 ¹⁾	1987
ITU-R Recommendation S 725	1992	Technical characteristics for very small aperture terminals (VSATs)	-	-
ITU-R Recommendation S 729	1992	Control and monitoring function of very small aperture terminals (VSATs)	-	-
ITU-T Recommendation X 24	1988	List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) on public data circuit-terminating equipment (DCE) on public data networks	-	-

1) EN 55022 is superseded by EN 55022:1994, which is based on CISPR 22:1993.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ITU-T Recommendation X 25	1993	Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit	-	-
Radio Regulations, Appendix 8	1990	Table of maximum permitted spurious emission power levels	-	-

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

Partie 3:

Mesures applicables aux stations terriennes
de télécommunications par satellite
Section 13: Systèmes VSAT

[SIST EN 60835-3-13:2002](https://standards.iteh.ai/catalog/standards/sist/e88cb85a-93a0-479a-b548-b110-429272/sist-en-60835-3-13-2002)

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

Part 3:

Measurements on satellite earth stations
Section 13: VSAT systems

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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CONTENTS

	Page
FOREWORD	5
Clause	
1 General	7
1.1 Scope	7
1.2 Normative references	7
2 General description	9
3 Methods of measurement	11
3.1 General considerations	11
3.2 Antenna	11
3.3 RF characteristics	13
3.3.1 Transmit carrier frequency range, accuracy and stability	13
3.3.2 Transmitter output power	13
3.3.3 Spurious emissions	15
3.3.4 Output on/off ratio	17
3.3.5 Receive carrier frequency and tolerance	19
3.3.6 Equivalent noise temperature	19
3.3.7 Figure of merit (G/T)	19
3.3.8 On-axis EIRP	19
3.3.9 Off-axis EIRP density	21
3.4 Modulator/demodulator performance	21
3.4.1 Spectrum of the modulated output signal	21
3.4.2 Phase and amplitude unbalance of the modulator output signal	23
3.4.3 Bit-error-ratio performance	23
3.5 End-to-end connection test	29
3.5.1 General considerations	29
3.5.2 Method of measurement	29
3.5.3 Presentation of results	31
3.5.4 Details to be specified	31
3.6 Monitor and control	31
3.6.1 General considerations	31
3.6.2 Presentation of results	33
3.6.3 Details to be specified	33
Figures	35
Annex A – Bibliography	41

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**METHODS OF MEASUREMENT
FOR EQUIPMENT USED IN DIGITAL MICROWAVE
RADIO TRANSMISSION SYSTEMS –**

**Part 3: Measurements on satellite earth stations –
Section 13: VSAT systems**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, express as nearly as possible an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
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- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 835-3-13 has been prepared by sub-committee 12E: Radio relay and satellite communication systems, of IEC technical committee 12: Radio-communications.

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

FDIS	Report on voting
12E/237/FDIS	12E/267/RVD

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

Annex A is for information only.

METHODS OF MEASUREMENT FOR EQUIPMENT USED IN DIGITAL MICROWAVE RADIO TRANSMISSION SYSTEMS –

Part 3: Measurements on satellite earth stations – Section 13: VSAT systems

1 General

1.1 Scope

This section of IEC 835-3 deals with the methods of measurements applicable to very small aperture terminals (VSATs) of data transmit/receive type both in the star network (many VSATs controlled by the hub earth station) and in the point-to-point network. Some clauses may also be applicable to the receive-only type VSATs. This section does not handle the measurements of the hub earth stations' equipment.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of IEC 835-3. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this section of IEC 835-3 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

[SIST EN 60835-3-13:2002](https://standards.iteh.ai/catalog/standards/sist/e88cb85a-93a0-479a-b548-b1d10ad29292a/sist-en-60835-3-13-2002)

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IEC 835-1-2: 1992, *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 2: Basic characteristics*

IEC 835-1-4: 1992, *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*

835-3-2: 1995, *Methods of measurement for equipment used in digital microwave radio transmission systems – Part 3: Measurements on satellite earth stations – Section 2: Antenna*

IEC 835-3-7: 1995, *Methods of measurement for equipment used in digital microwave radio transmission systems – Part 3: Measurements on satellite earth stations – Section 7: Figure-of-merit of receiving system*

IEC CISPR 22: 1985, *Limits and methods of measurement of radio interference characteristics of information technology equipment*

ITU-R* Recommendation S 725: 1992, *Technical characteristics for very small aperture terminals (VSATs)*

* Formerly CCIR.

ITU-R Recommendation S 729: 1992, *Control and monitoring function of very small aperture terminals (VSATs)*

ITU-T* Recommendation X 24: 1988, *List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) on public data circuit-terminating equipment (DCE) on public data networks*

ITU-T Recommendation X 25: 1993, *Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit*

Radio Regulations, Appendix 8: 1990, Table of maximum permitted spurious emission power levels

2 General description

VSATs are small, low-cost satellite earth stations which are equipped with small antennas (typically 1 m to 2 m), with low power RF transmitters (typically 0,5 W to 2 W), and with compact modem and signal processing units. They can be installed very easily on roof tops, on a wall, or in the car park of the user's office building, where the user data terminals are located. They can be used very conveniently and economically to connect the user terminals to the central host computer located at a distant processing centre. The VSATs are usually used for digital data communications. However, it is possible to use them for voice and/or video communications by adding appropriate voice/video coder/decoders or by adding TV receivers to demodulate analog FM TV signals.

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VSATs are often used in the star type network as shown in figure 1a). VSATs communicate with a relatively large central earth station, called the hub earth station. In this case, the type of modulation, the bit rates, the coding and access techniques of the outbound (hub to VSAT) channel and the inbound (VSAT to hub) channel are usually different in order to use the satellite channels effectively by multiple access schemes. In this type of VSAT networks the user data are usually processed by the VSAT and hub to support the various computer network protocols effectively.

Point-to-point connections between VSATs as shown in figure 1b) are also used. In this case, the modulation rate and format of the transmitting and receiving signals of the VSAT are usually the same, and the user data are usually passed through the VSAT network transparently without the protocol processing.

Usually a network control and monitoring computer is provided to control and monitor the network configuration and operation.

* Formerly CCIR.