SLOVENSKI STANDARD
SIST EN 60835-2-7:2002

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Methods of measurement for equipment used in digital microwave radio transmission systems - Part 2: Measurements on terrestrial radio-relay systems - Section 7: Diversity switching and combining equipment (IEC 60835-2-7:1994)

Methods of measurement for equipment used in digital microwave radio transmission systems -- Part 2: Measurements on terrestrial radio-relay systems -- Section 7: Diversity switching and combining equipment

Meßverfahren für Geräte in digitalen Mikrowellen-Funkübertragungssystemen -- Teil 2: Messungen an terrestrischen Richtfunksystemen -- Hauptabschnitt 7: Geräteeinrichtungen für Schalt- und Kombinationsdiversity

Méthodes de mesure applicables au matériel utilisé pour les systèmes de transmission numérique en hyperfréquence -- Partie 2: Mesures applicables aux faisceaux hertziens terrestres -- Section 7: Equipement de diversité par commutation et combinaison

Ta slovenski standard je istoveten z: **EN 60835-2-7:1994**

ICS:

33.060.30	Radiorelejni in fiksni satelitski komunikacijski sistemi	Radio relay and fixed satellite communications systems

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ENGLISH VERSION

Methods of measurement for equipment used in digital microwave radio transmission systems
Part 2: Measurements on terrestrial radio-relay systems
Section 7: Diversity switching and combining equipment
(IEC 835-2-7:1994)

Méthodes de mesure applicables au matériel utilisé pour les systèmes de transmission numérique en hyperfréquence
Partie 2: Mesures applicables aux faisceaux hertziens terrestres
Section 7: Equipement de diversité par commutation et combinaison
(CEI 835-2-7:1994)

Meßverfahren für Geräte in digitalen Mikrowellen-Funkübertragungs-systemen
Teil 2: Messungen an terrestrischen Richtfunksystemen
Hauptabschnitt 7: Geräte-einrichtungen für Schalt- und Kombinations-diversity
(IEC 835-2-7:1994)

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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(CO)149, as prepared by Sub-Committee 12E: Radio-relay and fixed satellite communications systems, of IEC Technical Committee 12: Radiocommunications, was submitted to the IEC-CENELEC parallel vote in April 1993.

The reference document was approved by CENELEC as EN 60835-2-7 on 8 March 1994.

The following dates were fixed:

- latest date of publication of an identical national standard	(dop)	1995-07-01
- latest date of withdrawal of conflicting national standards	(dow)	1995-07-01

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 835-2-7:1994 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

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.

NOTE : 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
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
835-1-4	1992	Section 4: Transmission performance	-	-
835-2-5	1993	Part 2: Measurements on terrestrial radio-relay systems Section 5: Digital signal processing sub-system	-	-
835-2-8	1993	Section 8: Adaptive equalizer	EN 60835-2-8	1993

Other publications:

CCITT Recommendation G. 703:1972 - Physical/electrical characteristics of hierarchical digital interfaces

CCITT Recommendation 752:1992 - Diversity techniques for radio-relay systems

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

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Mesures applicables aux faisceaux hertziens terrestres
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Methods of measurement for equipment used in digital microwave radio transmission systems

Part 2:

Measurements on terrestrial radio-relay systems
Section 7: Diversity switching and combining equipment

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International Electrotechnical Commission
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CONTENTS

Figures Pages

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

Part 2: Measurements on terrestrial radio-relay systems
Section 7: Diversity switching and combining equipment

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, 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.

3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 385-2-7 has been prepared by sub-committee 12E: Radio-relay and fixed satellite communications systems, of IEC technical committee 12: Radiocommunications.

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

DIS	Report on voting
12E(CO)149	12E(CO)161

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

INTRODUCTION

The availability of a radio-relay link for service may be influenced by the reliability of the equipment itself and by propagation conditions. Fading due to multipath propagation arises from interfering paths refracted in a stratified atmosphere. Since all the interfering paths are delayed relative to the direct path, multipath fading results in frequency-dependent amplitude and group-delay variations, in addition to variations in the received signal level (flat fading).

One way to overcome the propagation effects is by transmitting or receiving the signals over two (or more) diversity channels, as described in CCIR Report 376-6 (see clause 5 of this section). Diversity reception is based upon the fact that radio signals arriving at the receiving site by separate paths and/or at different frequencies have partially correlated impairments.

Therefore the effects of flat fading and/or multipath propagation upon the time during which the link is available for service may be decreased by suitably switching or combining the outputs of the diversity receivers.

The following types of diversity systems are in general use:

– frequency and cross-band diversity systems: these diversity arrangements use different frequencies in the same band or different frequency bands;

– space diversity systems: these use a single transmitting antenna and two or more receiving antennas.

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

Part 2: Measurements on terrestrial radio-relay systems
Section 7: Diversity switching and combining equipment

1 Scope

This section of IEC 835-2 deals with measurements for diversity equipment used in digital microwave systems. For the purpose of this section, diversity equipment is assumed to consist of the circuits for switching and/or combining the diversity channels, excluding the channel equipment itself, i.e. transmitters, receivers, modulators, demodulators, etc. although these may also be involved in the measurements.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of IEC 835-2. 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 835-2 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.

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 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 and satellite earth stations – Section 4: Transmission performance*

IEC 835-2-5: 1993, *Methods of measurement for equipment used in digital microwave radio transmission systems – Part 2: Measurements on terrestrial radio-relay – Section 5: Digital signal processing subsystem*

IEC 835-2-8: 1993, *Methods of measurement for equipment used in digital microwave radio transmission systems – Part 2: Measurements on terrestrial radio-relay – Section 8: Adaptive equalizer*

CCITT Recommendation G. 703: 1972, *Physical/electrical characteristics of hierarchical digital interfaces*

CCITT Recommendation 752, 1992, *Diversity techniques for radio-relay systems*