SLOVENSKI STANDARD
SIST EN 301 785 V1.2.1:2003

01-december-2003

Fiksni radijski sistemi ï Oprema tipa toļ ka-toļ ka za paketirane podatke ï Parametri za radijske sisteme z vmesniki za paketirane podatke za prenos digitalnih signalov, ki delujejo v frekvenļ nem obmoļ ju od 7, 8, 13, 15, 18, 23, 26, 28, 32, 38, 52 do 55 GHz

Fixed Radio Systems; Point-to-point packet data equipment; Parameters for radio systems with packet data interfaces for transmission of digital signals operating in the frequency range 7, 8, 13, 15, 18, 23, 26, 28, 32, 38, 52 to 55 GHz

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

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European Standard (Telecommunications series)

Fixed Radio Systems; Point-to-point packet data equipment; Parameters for radio systems with packet data interfaces for transmission of digital signals operating in the frequency range 7, 8, 13, 15, 18, 23, 26, 28, 32, 38, 52 to 55 GHz

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM).

The present document has already been published as an ETSI Technical Specification, under TS 101 785.

This V1.2.1 contains full formal revision, in term of definitions of spectral efficiency, now referenced to other existing ENs for conventional PDH/SDH application in the same frequency bands.

The former title of the present document V1.1.1 was "Fixed Radio Systems; Point-to-point equipment; Parameters for packet data radio systems for transmission of digital signals operating in the frequency range 23, 26, 28 or 38 GHz".

National transposition dates	
Date of adoption of this EN:	8 February 2002
Date of latest announcement of this EN (doa):	31 May 2002
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 November 2002
Date of withdrawal of any conflicting National Standard (dow):	30 November 2002

1 Scope

The present document specifies the minimum performance parameters for terrestrial fixed service radio communications equipment operating at 7, 8, 13, 15, 18, 23, 26, 28, 32, 38, 52 to 55 GHz provided with a combination Packet data interfaces or of Packet Data interfaces and PDH/SDH interfaces. Such digital systems are intended for use for point-to-point connections in local and regional networks.

For regulatory purpose, reference shall be made to existing PDH/SDH standards to be used to assess the efficient use of radio spectrum.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

NOTE: In the case of non-specific references, the time frame of application and new certification procedures for new releases of these normative references after the date of the first public enquiry of the present document or the first certification of the equipment shall be agreed between the supplier and the regulatory authority. These new certification procedures will cover in any case only the parameters subject to changes from the on going release during the previous certification.

[1] ITU-R Recommendation F.1102: "Characteristics of fixed wireless systems operating in frequency bands above about 17 GHz".

[2] ITU-R Recommendation P.530-9: "Propagation data and prediction methods required for the design of terrestrial line-of-sight systems".

[3] ETSI TR 101 035 (V1.1.3): "Transmission and Multiplexing (TM); Synchronous Digital Hierarchy (SDH) aspects regarding Digital Radio Relay Systems (DRRS)".

[4] ISO/IEC 8802-3: "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications".

[5] IEEE 802.3: "Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications".

[6] IEEE 802.1Q (1998): "Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks".

[7] ETSI EN 300 197 (V1.3.1): "Fixed Radio Systems; Point-to-point equipment; Parameters for radio systems for the transmission of digital signals operating at 38 GHz".

[8] ETSI EN 300 198 (V1.3.1): "Fixed Radio Systems; Point-to-point equipment; Parameters for radio systems for the transmission of digital signals operating at 23 GHz".

[9] ETSI EN 300 407 (V1.2.1): "Fixed Radio Systems; Point-to-point equipment; Parameters for digital radio systems for the transmission of digital signals operating at 55 GHz".

[10] ETSI EN 300 234 (V1.2.1): "Transmission and Multiplexing (TM); Digital Radio Relay Systems (DRRS); High capacity DRRS carrying 1 x STM-1 signals and operating in frequency bands with about 30 MHz channel spacing and alternated arrangements".

[11] ETSI EN 300 430 (V1.2.1): "Fixed Radio Systems; Point-to-point equipment; Parameters for radio systems for the transmission of STM-1 digital signals operating in the 18 GHz frequency band with channel spacing of 55 MHz and 27,5 MHz".

[12] ETSI EN 300 431 (V1.2.1): "Fixed Radio Systems; Point-to-point equipment; Parameters for radio system for the transmission of digital signals operating in the frequency range 24,50 GHz to 29,50 GHz".

[13] ETSI EN 300 639 (V1.2.1): "Fixed Radio Systems; Point-to-point equipment; Sub-STM-1 digital radio systems operating in the 13 GHz, 15 GHz and 18 GHz frequency bands with about 28 MHz co-polar and 14 MHz cross-polar channel spacing".

[14] ETSI EN 300 786 (V1.2.1): "Fixed Radio Systems; Point-to-point equipment; Sub-STM-1 digital radio systems operating in the 13 GHz, 15 GHz and 18 GHz frequency bands with about 14 MHz co-polar channel spacing".

[15] ETSI EN 301 128 (V1.1.2): "Fixed Radio Systems; Point-to-point equipment; Plesiochronous Digital Hierarchy (PDH); Low and medium capacity digital radio systems operating in the 13 GHz, 15 GHz and 18 GHz frequency bands".

[16] ETSI EN 301 216 (V1.1.1): "Fixed Radio Systems; Point-to-point equipment; Plesiochronous Digital Hierarchy (PDH); Low and medium capacity and STM-0 digital radio system operating in the frequency bands in the range 3 GHz to 11 GHz".

[17] ETSI EN 301 751: "Fixed Radio Systems; Point-to-Point equipments and antennas; Generic harmonized standard for Point-to-Point digital fixed radio systems and antennas covering the essential requirements under article 3.2 of the 1999/5/EC Directive".

[18] ETSI EN 301 786 (V1.2.1): "Fixed Radio Systems; Point-to-point equipment; Parameters for digital radio systems for the transmission of digital signals operating at 52 GHz".

[19] ITU-T Recommendation G.703: "Physical/electrical characteristics of hierarchical digital interfaces".

[20] ITU-T Recommendation G.704: "Synchronous frame structures used at 1 544, 6 312, 2 048, 8 448 and 44 736 kbit/s hierarchical levels".

[21] ITU-T Recommendation I.412: "ISDN user-network interfaces - Interface structures and access capabilities".

[22] ETSI ETS 300 233: "Integrated Services Digital Network (ISDN); Access digital section for ISDN primary rate".

[23] ITU-T Recommendation G.707: "Network node interface for the synchronous digital hierarchy (SDH)".

[24] ITU-T Recommendation G.783: "Characteristics of synchronous digital hierarchy (SDH) equipment functional blocks".

[25] ITU-T Recommendation G.784: "Synchronous digital hierarchy (SDH) management".

[26] ITU-T Recommendation G.957: "Optical interfaces for equipments and systems relating to the synchronous digital hierarchy".

[27] ITU-R Recommendation F.750: "Architectures and functional aspects of radio-relay systems for synchronous digital hierarchy (SDH)-based networks".

[28] Directive 1999/5/EC: "of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive)".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

Radio Interface Capacity (RIC): maximum user capacity, defined at reference point X/X', that can be transmitted over the radio interface, defined at reference point C'

Network Interface Capacity (NIC): sum of the maximum bit rates of the implemented base band interfaces at reference point X/X'

3.2 Symbols

For the purposes of the present document, the following symbols apply:

GHz	GigaHertz
Mbit/s	Megabits per second
MHz	MegaHertz

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

BER	Bit Error Ratio
DRRS	Digital Radio Relay Systems
FER	Frame Error Ratio
RIC	Radio Interface Capacity
NIC	Network Interface Capacity

4 General characteristics

4.1 Channel arrangements

The equipments shall operate on channels in accordance with the referenced radio standard selected from clause 5.1.

4.2 Channel spacing

The channel spacings and the equipment classes for the referenced standards and the required Radio Interface Capacities are defined in clause 5.1.

4.3 Baseband interface parameters

All of the following specified data interface parameters refer to point X and X' of figure 1.

4.3.1 Ethernet data interface

10 Mbit/s, 100 Mbit/s and 1 000 Mbit/s interfaces shall comply with the OSI physical layer requirements of ISO/IEC 8802-3 [4] and IEEE 802.3 [5] respectively. 10 Mbit/s, 100 Mbit/s and 1 000 Mbit/s interfaces shall comply with the maximum packet sizes defined in IEEE 802.1Q [6].