



SLOVENSKI STANDARD SIST ETS 300 636 E1:2003

01-december-2003

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Transmission and Multiplexing (TM); Time Division Multiple Access (TDMA) point-to-multipoint digital radio systems in the frequency range 1 to 3 GHz

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Ta slovenski standard je istoveten z: **ETS 300 636 Edition 1**
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ICS:

33.040.20	Prenosni sistem	Transmission systems
33.060.30	Radiorelejni in fiksni satelitski komunikacijski sistemi	Radio relay and fixed satellite communications systems

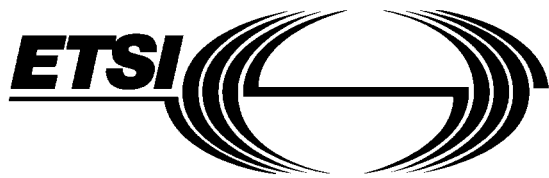
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EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 636

October 1996

Source: ETSI TC-TM

Reference: DE/TM-04015

ICS: 33.060.30

Key words: TDMA, multipoint, transmission, radio

**Transmission and Multiplexing (TM);
Time Division Multiple Access (TDMA)
point-to-multipoint digital radio systems
in the frequency range 1 to 3 GHz**

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 4 92 94 42 00 - Fax: +33 4 93 65 47 16

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Transmission and Multiplexing (TM) Technical Committee of the European Telecommunications Standards Institute (ETSI).

Transposition dates	
Date of adoption of this ETS:	4 October 1996
Date of latest announcement of this ETS (doa):	31 January 1997
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 July 1997
Date of withdrawal of any conflicting National Standard (dow):	31 July 1997

Introduction

The main field of application of Point-to-Multipoint (P-MP) systems is to provide access to both the Public Switched Telephone Network (PSTN) and private networks (Private Digital Network (PDN)), particularly for remote subscribers. By means of P-MP systems the network service area may be extended to cover both distant and scattered subscriber locations.

These remote subscribers, in a similar manner to the city subscriber, are offered the full range of services by the particular public or private network. Subscribers have access to these services by means of the various standardized user network interfaces (2-wire loop, data, ...).

P-MP applications in the metropolitan and urban environment are mainly for the provision of new data services for business subscribers and for the extension of Integrated Services Digital Network (ISDN) services to local subscribers.

The frequency bands below 3 GHz are particularly suitable for the extension of telecommunications services to distant rural and suburban subscribers.

P-MP systems provide standard network interfaces and transparently connect subscribers to the appropriate network node (local switch, ...). These systems allow a service to be connected to a number of subscribers ranging from a few users to several hundred and over a wide range of distances.

P-MP systems are generally, but not necessarily, configured as pre-assigned systems or as Demand Assigned Multiple Access (DAMA) radio systems.

The essential features of a typical P-MP DAMA radio systems are:

- efficient use of the radio spectrum;
- concentration;
- transparency.

Radio is often the ideal way of obtaining communications at low cost and almost independent of distance and difficult topology. Moreover, only a small number of sites are required for these installations, thus facilitating rapid implementation and minimizing maintenance requirements of the systems.

Concentration means that N subscribers can share n channels (N being larger than n), allowing better use to be made of the available frequency spectrum and at a lower equipment cost. The term "multi-access" is derived from the fact that every subscriber has access to every channel (instead of a fixed assignment as in most multiplex systems). When a call is initiated one of the available channels is allocated to it. When the call is terminated, the channel is released for another call.

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Concentration requires the use of distributed intelligent control which in turn allows many other operation and maintenance functions to be added.

Transparency means that the exchange and the telephone communicate with each other without being aware of the radio link.

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1 Scope

1.1 Applications

The scope of this European Telecommunication Standard (ETS) covers the following Point-to-Multipoint (P-MP) applications:

- voice;
- telex;
- low speed data (up to 64 kbit/s);
- Integrated Services Digital Network (ISDN) (basic rate access).

1.2 Frequencies

This ETS covers fixed P-MP services operating in the 1,5 GHz, 2,2 GHz, 2,4 GHz and 2,6 GHz bands and having the frequency plans as given in CEPT Recommendation T/R 13-01 [1] for 1,5 GHz, 2,2 GHz and 2,6 GHz bands. For the 2,4 GHz band, the CCIR Recommendation F.701 [2] is applicable.

1.3 Access method

This ETS covers Time Division Multiple Access (TDMA) systems.

2 Normative references

This ETS 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 ETS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

- (standards.iteh.ai)
- [1] CEPT T/R 13-01: "Preferred channel arrangements for fixed services in the range 1 to 3 GHz".
<https://standards.iteh.ai/catalog/standards/sist/fd6ad015-6403-446d-8f3b-e246ad208307/sist-ets-300-636-e1-2003>
- [2] CCIR Recommendation F.701 (1990): "Radio-frequency channel arrangements for analogue and digital point-to-multipoint radio systems operating in frequency bands in the range 1.427 to 2.690 GHz (1.5, 1.8, 2.0, 2.2, 2.4 and 2.6 GHz)".
- [3] CCITT Recommendation G.821 (1990): "Error performance of an international digital connection forming part of an integrated services digital network".
- [4] ITU-T Recommendation G.773 (1990): "Protocol suites for Q-interfaces for management of transmission systems".
- [5] ETS 300 631-2: "Transmission and Multiplexing (TM); Digital Radio Relay Systems (DRRS); Antennas in bands 1 to 3 GHz; Antennas for point-to-multipoint radio links".
- [6] ITU-T Recommendation G.712 (1993): "Transmission performance characteristics of pulse code modulation".
- [7] CCITT Recommendation R.20 (1990): "Telegraph modem for subscriber lines".
- [8] CCITT Recommendation G.703 (1991): "Physical/electrical characteristics of hierarchical digital interfaces".
- [9] ETS 300 012: "Integrated Services Digital Network (ISDN); Basic user-network interface Layer 1 specification and test principles".
- [10] ETS 300 324 Parts 1 to 5 and Part 7: "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE) V5.1 interface for the support of Access Network (AN)".