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Foreword

This European Telecommunication Standard (ETS) has been produced by the Terrestrial Trunked Radio (TETRA) Project of the European Telecommunications Standards Institute (ETSI).

This ETS is a multi-part standard and will consist of the following parts:

Part 1:   "General network design";

Part 2:   "Air Interface (AI)";

Part 3:   "Interworking at the Inter-System Interface (ISI)";

Part 4:   "Gateways basic operation";

Part 5:   "Peripheral Equipment Interface (PEI)";

Part 6:   "Line connected Station (LS)";

Part 7:   "Security";

Part 9:   "General requirements for supplementary services";

Part 10:   "Supplementary services stage 1";

Part 11:   "Supplementary services stage 2";

Part 12:   "Supplementary services stage 3";

Part 13:   "SDL model of the Air Interface (AI)";

Part 14:   "Protocol Implementation Conformance Statement (PICS) proforma specification".

Transposition dates	
Date of adoption of this ETS:	4 June 1999
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1 Scope

This ETS specifies Packet mode Data Network (PDN) gateways for TETRA Switching and Management Infrastructures (SwMI).

The circuit mode data services and Internet Protocol (IP) issues are outside the scope of this ETS.

The information exchange about address mapping between the TETRA air interface address and any external data network address due to migration between TETRA SwMIs is outside the scope of this gateway standard.

The gateway functions are defined as required by the used upper network layer protocol and are outside the scope of this standard.

2 Normative references

This ETS incorporates by dated and 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.

[1]   ETS 300 392-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design".

[2]   ETS 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

[3]   ITU-T Recommendation X.35 (1993): "Interface between a PSPDN and a Private PSDN which is based on X.25 procedures and enhancements to define a gateway function that is provided in the PSPDN".

[4]   ITU-T Recommendation X.75 (1993): "Packet-switched signalling system between public networks providing data transmission services".

[5]   ITU-T Recommendation X.31 (1995): "Support of packet mode terminal equipment by an ISDN".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following terms and definitions apply:

TETRA user: user within TETRA addressing domain and utilizes a data network gateway.

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

CLNP   ConnectionLess Network Protocol
CONP   Connection Oriented Network Protocol
CONS   Connection Oriented Network Service
GTSI   Group TETRA Subscriber Identity
IP   Internet Protocol
ITSI   Individual TETRA Subscriber Identity
NSAP   Network Service Access Point
PDN   Packet mode Data Network
SCLNS   Specific ConnectionLess Network Service
SwMI   Switching and Management Infrastructure

4 General on data network gateways

TETRA air interface standard ETS 300 392-1 [1] and ETS 300 392-2 [2] can support multiple packet mode data communication standards such as:

- Connection Oriented Network Protocol (CONP);

- ConnectionLess Network Protocol (CLNP);

- Specific ConnectionLess Network Service (SCLNS).

This ETS considers the X.25 packet data gateway and related issues. As a part of data transmission path a TETRA SwMI could behave seen from the external network as a data terminal or as a data network node. In both cases a TETRA user equipment identification Individual TETRA Subscriber Identity (ITSI) or Group TETRA Subscriber Identity (GTSI) is associated with an X.25 address known by the external network, see ETS 300 392-1 [1], clause 7, Network Service Access Point (NSAP) addressing. This association or binding may be static or dynamic.

5 Data network gateways

5.1 X.25 and X.75 gateway

A TETRA SwMI shall be connected to a X.25 network as a X.25 network node.

ITU-T Recommendation X.35 [3] should be used as a guide in design of interface to PDNs.

The SwMI shall act as a data node on the X.25 network and the protocol defined in ITU-T Recommendation X.75 [4] shall be used for interworking purposes.

5.2 Specific ConnectionLess Network Service (SCLNS)

The SCLNS as defined in ETS 300 392-2 [2], clause 26 as such is a sub-network access protocol and requires an upper network layer provided by other network layer protocols. A full version of this service is bound to the TETRA domain although some of the facilities may be mapped against other network protocols in the gateway e.g. time stamping, see ETS 300 392-2 [2], subclause 27.2.1.

6 Address mapping

The TETRA networks use addresses as defined in ETS 300 392-1 [1], clause 7. TETRA air interface addressing and external data networks addressing are inherently different although TETRA address construction is the same as used in other land mobile systems and e.g. country code values may be same. For that reason an address mapping is required between TETRA and external networks. The address mapping inside TETRA network should follow the same principles as defined in ITU-T Recommendation X.31 [5] for the X.25 service. In effect the TETRA air interface address should be a sub-network address limited to the TETRA domain.

Annex A (informative): Bibliography

- ISO 8208: "X.25 packet level protocol for Data Terminal Equipment".

- ISO 8348: "Information processing systems - Data communications-Network service definition".

- ISO 8473: "Protocol for providing the connectionless mode network service".

- ISO 8878: "Use of X.25 to provide the OSI connection mode network".

- ITU-T Recommendation X.21 (1992): "Interface between Data Terminal equipment and Data Circuit-terminating Equipment for synchronous operation on public data networks".

- CCITT Recommendation X.21 bis (1988): "Use on public data networks of Data Terminal Equipment (DTE) which is designed for interfacing to synchronous V-Series modems".

- 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".

- ITU-T Recommendation X.28 (1993): "DTE/DCE interface for a start-stop mode data terminal equipment accessing the packet assembly/disassembly facility (PAD) in a public data network situated in the same country".

- ITU-T Recommendation X.29 (1993): "Procedures for the exchange of control information and user data between a packet assembly/disassembly (PAD) facility and a packet mode DTE or another PAD".

- ITU-T Recommendation X.30/I.461 (1993): "Support of X.21, X.21 bis and X.20 bis based Data Terminal Equipments (DTEs) by an Integrated Services Digital Network (ISDN)".

- ITU-T Recommendation X.32 (1993): "Interface between DTE and DCE for terminals operating in the packet mode and accessing a packet switched public data network through a public switched telephone network or an integrated services digital network or a circuit switched public data network".

- ITU-T Recommendation X.300 (1993): "General Principles for Interworking between Public Networks and between Public Networks and other Networks for the Provision of Data Transmission Services".

- ITU-T Recommendation X.301 (1996): "Description of the general arrangements for call control within a subnetwork and between subnetworks for the provision of data transmission services".

- ITU-T Recommendation X.325 (1993): "General Arrangements for Interworking between Packet Switched Public Data Networks (PSPDNs) and Integrated Services Digital Networks (ISDNs) for the Provision of Data Transmission Services".

History

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