PAS 0001-13-1 V1.0.0 (1997-06)

Publicly Available Specification

TETRAPOL Specifications
Part 13: UDT and ST interface;
SubPart 1: Overview of UDT architecture

Reference

Keywords

Tetrapol

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Contents

INTELLECTUAL PROPERTY RIGHTS 4

FOREWORD 4

1. SCOPE 5

2. NORMATIVE REFERENCES 5

3. DEFINITIONS AND ABBREVIATIONS 5

3.1. Definitions 5

3.2. Abbreviations 5

4. UDT ARCHITECTURE OVERVIEW 6

4.1. System overview 6

4.2. Type 1 UDT overview 7

4.3. Type 2 UDT overview 8

HISTORY 10

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Foreword

This document is the Publicly Available Specification (PAS) of the TETRAPOL land mobile radio system, which shall provide digital narrow band voice, messaging, and data services. Its main objective is to provide specifications dedicated to the more demanding PMR segment: the public safety. These specifications are also applicable to most PMR networks.

This PAS is a multipart document which consists of:

Part 1 General Network Design

Part 2 Radio Air interface

Part 3 Air Interface Protocol

Part 4 Gateway to X.400 MTA

Part 5 Interface to dispatch centre

Part 6 Line Connected Terminal interface

Part 7 Codec

Part 8 Radio conformance tests

Part 9 Air interface protocol conformance tests

Part 10 Inter System Interface

Part 11 Gateway to PABX, ISDN, PDN

Part 12 Network Management Centre interface

Part 13 User Data Terminal to System Terminal interface

Part 14 System Simulator

Part 15 Gateway to External Data Terminal

Part 16 Security

Part 17 Guide to TETRAPOL features

Part 18 Base station to Radioswitch interface

Part 19 Stand Alone Dispatch Position interface

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1. Scope

The purpose of this part is to present the architecture of the different types of UDT which can be connected to a TETRAPOL system.

2. Normative references

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

[1] PAS 0001-1-1: "TETRAPOL Specifications; General Network Design; Reference Model".

[2] PAS 0001-11-3: "TETRAPOL Specifications; Gateway to External Networks; Gateway to IP Networks".

[3] PAS 0001-13-2: "TETRAPOL Specifications; UDT and ST interface; Submit / Delivery Protocol".

[4] PAS 0001-13-3: "TETRAPOL Specifications; UDT and ST interface; STUTEL Profile for the UDT".

[5] PAS 0001-13-4: "TETRAPOL Specifications; UDT and ST interface; TCP-UDP/IP protocols".

[6] PAS 0001-13-5: "TETRAPOL Specifications; UDT and ST interface; Control and Supervision".

[7] Microsoft Development Network Library (July 96): "Win NT DDK Network Drivers".

3. Definitions and abbreviations

3.1. Definitions

For the purposes of this PAS, the following definitions apply:

Data Application Server (DAS): Functional entity in the external system managing IP applications. These applications are also located in the UDT. TETRAPOL SwMI provides IP transmission between UDTs and DASs.

Data Network Controller (DNC): Functional entity in the TETRAPOL SwMI, featuring the access point to the external system for the IP transmission. The DNC handles the IP routing between the TETRAPOL system and external systems.

Downlink message: Message transmitted by the SwMI to an ST, then to a UDT.

Uplink message: Message transmitted by a UDT to an ST, then to the SwMI.

3.2. Abbreviations

For the purposes of this PAS, the following abbreviations apply as well as those given in PAS 0001-1-1 [1]:

API	Applicative Programming Interface
BNLM	Base Network Local Messaging
CS	Control and Supervision driver
DAS	Data Application Server

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DLL	Dynamic Link Library
DNC	Data Network Controller
DTAP	Data Transmission Applicative Protocol
EXAM	External Application Messaging
IP	Internet Protocol
IPM	Inter-Personal Messaging
LAN	Local Area Network
MPAP	Mobile PC Asynchronous Protocol
NDIS	Network Driver Interface Specification
NIC	Network Interface Card
SDP	Submit and Delivery Protocol
TCP	Transport Connected Protocol
UDP	User Data Protocol

4. UDT architecture overview

4.1. System overview

At reference points R1 and R2, the TETRAPOL system provides several levels of interfaces in relation with two different UDT architecture:

- the first type of UDT is based on the normative protocol STUTEL (PAS 0001-13-3 [4]) and the proprietary protocol SDP (PAS 0001-13-2 [3]);

- the second type of UDT is built in a Windows architecture including a NDIS low layer driver, various NDIS protocol drivers and Windows applications. This architecture is flexible and evolutive.

IPM, EXAM and BNLM applications may equally be resident in the two architectures.

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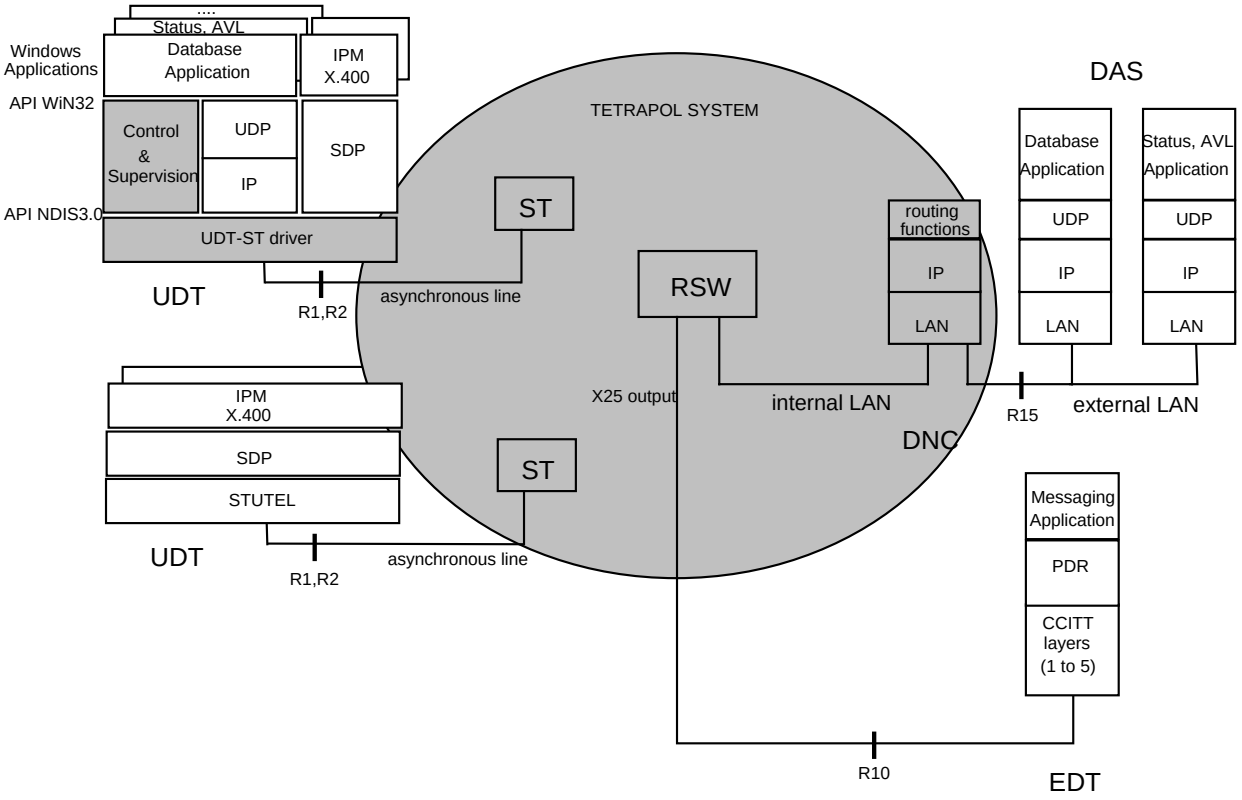

Figure 1: General Architecture

NOTE 1: The shaded entities in the UDT form part of the TETRAPOL system.
NOTE 2: The two types of UDT may be present on the same TETRAPOL system.

4.2. Type 1 UDT overview

This type of UDT architecture is described in PAS 0001-13-2 [3] which describes the SDP protocol and in PAS 0001-13-3 [4] which describes the STUTEL Profile for the UDT.

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4.3. Type 2 UDT overview

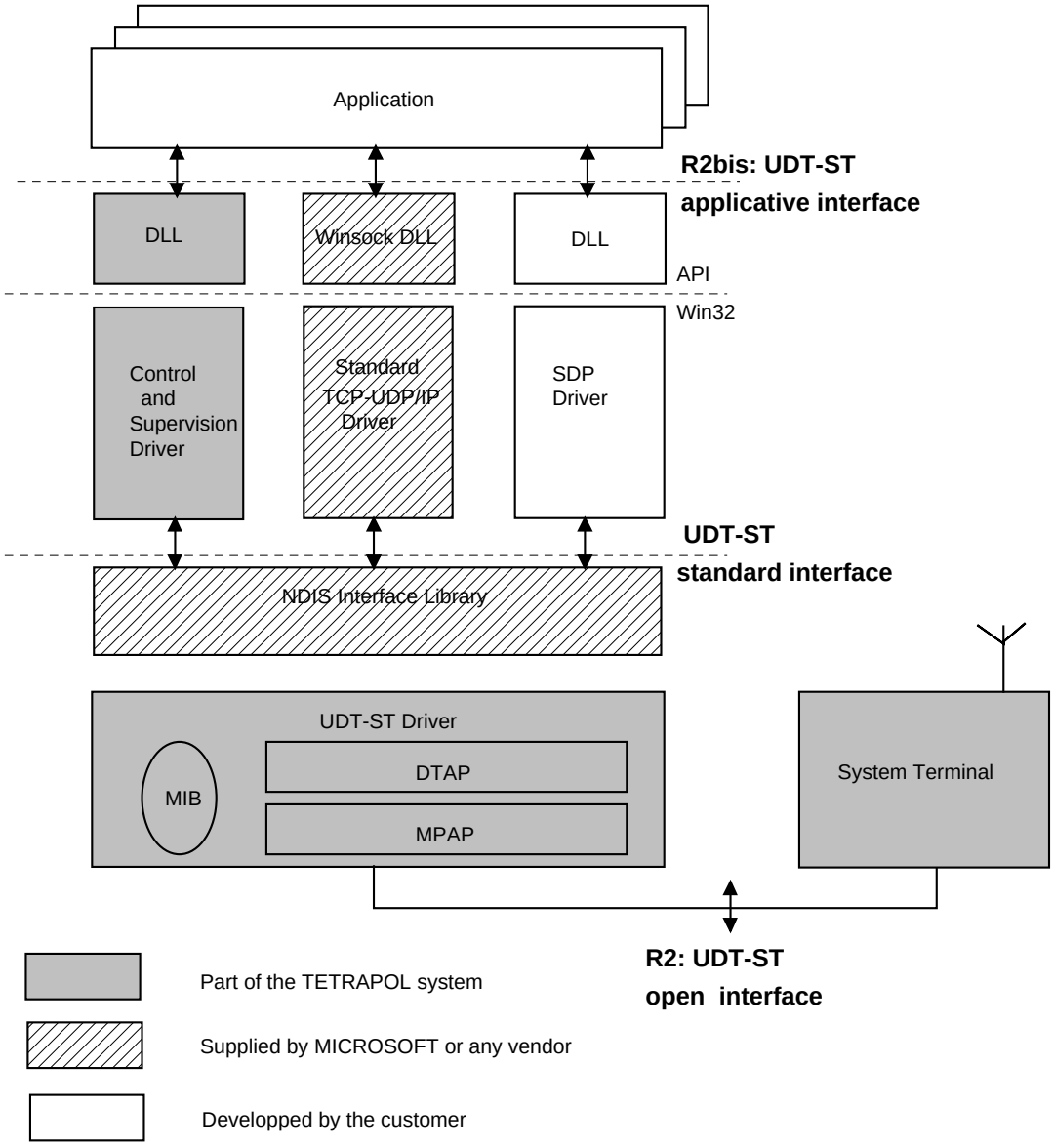

Figure 2: type 2 UDT architecture

This scheme shows three levels for the external data interface in the UDT:

- ***UDT-ST open interface***: the interface on the link between UDT and ST. This interface enables to connect to the ST a dedicated UDT (for example an on-board computer)

- ***UDT-ST standard interface***: the interface on the NDIS layer. This interface is compliant with the NDIS 3.0 standard;

- ***UDT-ST applicative interface***: For TCP-UDP/IP protocol, the most usual interface is a Socket type Interface, supplied by a Winsock DLL. For the proprietary Control and Supervision protocol, the applicative interface is a set of primitives, grouped in a Win32 DLL.

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UDT-ST Driver is implemented as a Miniport NIC driver (in respect with Microsoft terminology). The NIC is defined as the physical link between UDT and ST, the ST and the access to the radio link. The NIC is in fact, a "wireless" adapter.

It includes the asynchronous protocol with a RT. This driver shall handle the connection establishment, data exchange and connection termination with the ST.

In NDIS terminology, upper layers are called protocol drivers. These one can be split in three categories:

- standard protocol drivers: the LAN protocols IP, UDP and TCP are supported;

- non standard protocol drivers: the SDP protocol is supported in order to install messaging applications;

- specific protocol drivers: the CS driver does not offer data transmission services, but supplementary services, which are generally not provided by standard protocol drivers.

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History

Document history		
Date	**Status**	**Comment**
23 May 1997	Version 0.0.1	First version
3 June 1997	Version 0.1.0	Update after review
25 June 1997	Version 1.0.0	Tetrapol Forum Approval

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