



Technical Report

**Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 17: TETRA V+D and DMO specifications;
Sub-part 5: Release 2.1**

Reference

DTR/TETRA-03202

Keywords

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Terrestrial Trunked Radio (TETRA).

The present document is part 17, sub-part 5 of a multi-part deliverable covering the Voice plus Data (V+D), as identified below:

- | | |
|-----------------------|--|
| EN 300 392-1: | "General network design"; |
| EN 300 392-2: | "Air Interface (AI)"; |
| EN 300 392-3: | "Interworking at the Inter-System Interface (ISI)"; |
| ETS 300 392-4: | "Gateways basic operation"; |
| EN 300 392-5: | "Peripheral Equipment Interface (PEI)"; |
| EN 300 392-7: | "Security"; |
| EN 300 392-9: | "General requirements for supplementary services"; |
| EN 300 392-10: | "Supplementary services stage 1"; |
| EN 300 392-11: | "Supplementary services stage 2"; |
| EN 300 392-12: | "Supplementary services stage 3"; |
| ETS 300 392-13: | "SDL model of the Air Interface (AI)"; |
| ETS 300 392-14: | "Protocol Implementation Conformance Statement (PICS) proforma specification"; |
| TS 100 392-15: | "TETRA frequency bands, duplex spacings and channel numbering"; |
| TS 100 392-16: | "Network Performance Metrics"; |
| TR 100 392-17: | "TETRA V+D and DMO specifications": |
| • Sub-part 1: | "Release 1.1"; |
| • Sub-part 2: | "Release 1.2"; |
| • Sub-part 3: | "Release 1.3"; |
| • Sub-part 4: | "Release 2.0"; |
| • Sub-part 5: | "Release 2.1" . |
| TS 100 392-18: | "Air interface optimized applications". |

NOTE: Part 3, sub-parts 6 and 7 (Speech format implementation), part 4, sub-part 3 (Data networks gateway), part 10, sub-part 15 (Transfer of control), part 13 (SDL) and part 14 (PICS) of this multi-part deliverable are in status "historical" and are not maintained.

Introduction

The TETRA standard was developed to satisfy the unique user requirements of PMR/PAMR which, when combined, cannot be met by any other existing or planned ETSI standard. TETRA is a technology that offers a unique range of services and features that are not available from other systems.

TETRA Releases 2.x are defined in the Terms of Reference of ETSI Project TETRA for TETRA Release 2 [i.1] and are continuously maintained.

1 Scope

The present document identifies ETSI specifications for TETRA V+D and DMO Release 2.1.

Release 2.0 specifications were functionally frozen after the 28th TC TETRA meeting in October 2006.

Release 2.1 specifications contain corrections and enhancements to the Release 2.0 since publication of the Release 2.0 including TEDS Direct Access, Net Assist Protocol, Direct mode Over The Air Management protocol and new parts to the User Requirements Specification in addition to maintenance of the TETRA standards and reports.

NOTE 1: Functionally frozen means that no further functionality/features may be incorporated into the set of specifications, and that only corrective Change Requests (CRs) are to be accepted and agreed.

NOTE 2: It can be expected that corrective CRs will be introduced into the Release 2.1 specifications.

NOTE 3: Some of the CRs that will be produced will be for the next Release as they add new functionalities/features.

NOTE 4: Some of the documents were in Public Enquiry, One step Approval or National Voting stage at the publication of the present document. Due to those stages editorial modifications may be performed and the version number of the document may step up in the last digit in addition to the normal step-up due to publication or voting. The resulting version is also a part of the present Release 2.1.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] Terms of Reference of ETSI Technical Committee TETRA.

NOTE: Available at http://portal.etsi.org/tetra/TETRA_ToR.asp.

3 Abbreviations

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

AI	Air Interface
AL	Ambience Listening
AMR	Adaptive Multi-Rate
ANF-ISIGC	Additional Network Feature - Inter-System Interface Group Call
ANF-ISIIC	Additional Network Feature - Inter-System Interface Individual Call
ANF-ISIMM	Additional Network Feature - Inter-System Interface Mobility Management
ANF-ISISDS	Additional Network Feature - Inter-System Interface Short Data Service
AP	Access Priority
AS	Area Selection
BIC	Barring of Incoming Calls
BOC	Barring of Outgoing Calls
CAD	Call Authorized by Dispatcher
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CF	Call Forwarding
CI	Call Identification
CR	Change Request
CRT	Call Retention
CW	Call Waiting
DG	Designers' Guide
DGNA	Dynamic Group Number Assignment
DL	Discreet Listening
DMO	Direct Mode Operation
DOTAM	Direct mode Over The Air Management
EMC	ElectroMagnetic Compatibility
HOLD	Call Hold
IC	Include Call
IC	Integrated Circuit
ISDN	Integrated Services Digital Network
ISI	Inter-System Interface
LE	Late Entry
LI	Lawful Interception
LIP	Location Information Protocol
LSC	List Search Call
MS-MS	Mobile Station to Mobile Station
NAP	Net Assist Protocol
PAMR	Public Access Mobile Radio
PC	Priority Call
PEI	Peripheral Equipment Interface
PICS	Protocol Implementation Conformance Statement
PMR	Private Mobile Radio
PMR	Professional Mobile Radio
PPC	Pre-emptive Priority Call
PSS	Public Security and Safety
PSTN	Public Switched Telephone Network
RF	Radio Frequency
SDL	Specification and Description Language
SIM-ME	Subscriber Identity Module to Mobile Equipment
SNA	Short Number Addressing
TEDS	TETRA Enhanced Data Service
ToR	Terms of Reference
TPI	Talking Party Identification
UICC	Universal Integrated Circuit Card
V+D	Voice plus Data

4 Specifications of TETRA Release 2.1

The following clauses contain ETSI deliverables included in TETRA V+D and DMO Release 2.1.

NOTE: When both EN or ES and TS versions are available, then the TS is listed separately only, if the version number of the TS is the same or greater than the latest EN or ES version number.

4.1 Voice plus Data (V+D)

EN 300 392-1 (V1.4.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design".

EN 300 392-2 (V3.4.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

NOTE: TS 100 392-2 (V3.5.1) adds Direct Access capability to TEDS and corrects identified mistakes and should be used as the normative reference.

TS 100 392-2 (V3.5.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

EN 300 392-3-1 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 1: General design".

EN 300 392-3-2 (V1.4.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 2: Additional Network Feature Individual Call (ANF-ISIIC)".

EN 300 392-3-3 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 3: Additional Network Feature Group Call (ANF-ISIGC)".

EN 300 392-3-4 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 4: Additional Network Feature Short Data Service (ANF-ISISDS)".

EN 300 392-3-5 (V1.4.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 5: Additional Network Feature for Mobility Management (ANF-ISIMM)".

TS 100 392-3-8 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 8: Generic Speech Format Implementation".

ETS 300 392-4-1 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 4: Gateways basic operation; Sub-part 1: Public Switched Telephone Network (PSTN)".

ETS 300 392-4-2 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 4: Gateways basic operation; Sub-part 2: Integrated Services Digital Network (ISDN) gateway".

EN 300 392-5 (V2.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 5: Peripheral Equipment Interface (PEI)".

TS 100 392-5 (V2.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 5: Peripheral Equipment Interface (PEI)".

NOTE: At the time of writing the document was in WG3 as version V2.2.2 for publication as version V2.3.1.

EN 300 392-7 (V3.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".

NOTE: At the time of writing the document was in WG6 as version V3.2.3 for OAP as version V3.3.0.

EN 300 392-9 (V1.5.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 9: General requirements for supplementary services".

NOTE: At the time of writing the document was in preparation as version V1.4.2 for OAP as V1.5.0.

EN 300 392-10-1 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 1: Call Identification (CI)".

ETS 300 392-10-2 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 2: Call report".

ETS 300 392-10-3 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 3: Talking Party Identification (TPI)".

EN 300 392-10-4 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 4: Call Forwarding (CF)".

ETS 300 392-10-5 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 5: List Search Call (LSC)".

EN 300 392-10-6 (V1.4.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 6: Call Authorized by Dispatcher (CAD)".

ETS 300 392-10-7 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 7: Short number addressing".

EN 300 392-10-8 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 8: Area Selection (AS)".

ETS 300 392-10-9 (1998): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 9: Access priority".

EN 300 392-10-10 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-Part 10: Priority Call (PC)".

EN 300 392-10-11 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-Part 11: Call Waiting (CW)".

EN 300 392-10-12 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-Part 12: Call Hold (HOLD)".

ETS 300 392-10-13 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 13: Call completion to busy subscriber".

EN 300 392-10-14 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 14: Late Entry (LE)".

EN 300 392-10-16 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 16: Pre-emptive priority call".

EN 300 392-10-17 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 17: Include Call (IC)".

EN 300 392-10-18 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Part 10-18: Barring of Outgoing Calls (BOC)".

EN 300 392-10-19 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 19: Barring of Incoming Calls (BIC)".

ETS 300 392-10-20 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 20: Discreet Listening (DL)".

EN 300 392-10-21 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 21: Ambience Listening (AL)".

- EN 300 392-10-22 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 22: Dynamic Group Number Assignment (DGNA)".
- ETS 300 392-10-23 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 23: Call completion on no reply".
- ETS 300 392-10-24 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 24: Call Retention (CRT)".
- EN 300 392-11-1 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 1: Call Identification (CI)".
- ETS 300 392-11-2 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 2: Call Report (CR)".
- ETS 300 392-11-3 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 3: Talking Party Identification (TPI)".
- EN 300 392-11-4 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 4: Call Forwarding (CF)".
- ETS 300 392-11-5 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 5: List Search Call (LSC)".
- EN 300 392-11-6 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 6: Call Authorized by Dispatcher (CAD)".
- ETS 300 392-11-7 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 7: Short Number Addressing (SNA)".
- EN 300 392-11-8 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 8: Area Selection (AS)".
- ETS 300 392-11-9 (1998): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 9: Access Priority (AP)".
- EN 300 392-11-10 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-Part 10: Priority Call (PC)".
- ETS 300 392-11-11 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-Part 11: Call Waiting (CW)".
- EN 300 392-11-12 (V1.1.2): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-Part 12: Call Hold (HOLD)".
- ETS 300 392-11-13 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 13: Call Completion to Busy Subscriber (CCBS)".
- EN 300 392-11-14 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 14: Late Entry (LE)".
- EN 300 392-11-16 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 16: Pre-emptive Priority Call (PPC)".
- EN 300 392-11-17 (V1.1.2): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 17: Include Call (IC)".
- EN 300 392-11-18 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 18: Barring of Outgoing Calls (BOC)".
- EN 300 392-11-19 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 19: Barring of Incoming Calls (BIC)".
- ETS 300 392-11-20 (1999): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 20: Discreet Listening (DL)".

EN 300 392-11-21 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 21: Ambience Listening (AL)".

ETS 300 392-11-22 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 22: Dynamic Group Number Assignment (DGNA)".

ETS 300 392-11-23 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 23: Call Completion on No Reply (CCNR)".

ETS 300 392-11-24 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 24: Call Retention (CRT)".

EN 300 392-12-1 (V1.2.2): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 1: Call Identification (CI)".

ETS 300 392-12-2 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 2: Call Report (CR)".

EN 300 392-12-3 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 3: Talking Party Identification (TPI)".

EN 300 392-12-4 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 4: Call Forwarding (CF)".

NOTE: At the time of writing the document was in preparation as version V1.2.3 for OAP as version V1.3.0.

ETS 300 392-12-5 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 5: List Search Call (LSC)".

EN 300 392-12-6 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 6: Call Authorized by Dispatcher (CAD)".

ETS 300 392-12-7 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 7: Short Number Addressing (SNA)".

EN 300 392-12-8 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 8: Area Selection (AS)".

ETS 300 392-12-9 (1998): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 9: Access Priority (AP)".

EN 300 392-12-10 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-Part 10: Priority Call (PC)".

ETS 300 392-12-11 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-Part 11: Call Waiting (CW)".

EN 300 392-12-12 (V1.1.2): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-Part 12: Call Hold (HOLD)".

EN 300 392-12-13 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 13: Call Completion to Busy Subscriber (CCBS)".

NOTE: At the time of writing the document was in preparation as version V1.1.3 for OAP as V1.2.0.

EN 300 392-12-14 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 14: Late entry (LE)".

NOTE: At the time of writing the document was in preparation as version V1.1.2 for OAP as V1.2.0.

EN 300 392-12-16 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 16: Pre-emptive Priority Call (PPC)".

EN 300 392-12-17 (V1.1.2): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 17: Include Call (IC)".

EN 300 392-12-18 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 18: Barring of Outgoing Calls (BOC)".

EN 300 392-12-19 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 19: Barring of Incoming Calls (BIC)".

EN 300 392-12-20 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 20: Discreet Listening (DL)".

NOTE: At the time of writing the document was in preparation as version V1.1.3 for OAP as V1.2.0.

EN 300 392-12-21 (V1.5.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 21: Ambience Listening (AL)".

NOTE: At the time of writing the document was in preparation as version V1.4.2 for OAP as V1.5.0.

EN 300 392-12-22 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 22: Dynamic Group Number Assignment (DGNA)".

EN 300 392-12-23 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 23: Call Completion on No Reply (CCNR)".

NOTE: At the time of writing the document was in preparation as version V1.1.4 for OAP as V1.2.0.

ETS 300 392-12-24 (2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 24: Call Retention (CRT)".

TS 100 392-15 (V1.5.1): "Terrestrial Trunked Radio (TETRA) Voice plus DATA (V+D) Part 15: TETRA frequency bands, duplex spacings and channel numbering".

TS 100 392-16 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 16: Network Performance Metrics".

TS 100 392-18-1 (V1.6.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D) and Direct Mode Operation (DMO); Part 18: Air interface optimized applications; Sub-part 1: Location Information Protocol (LIP)".

NOTE: At the time of writing the document was at WG3 as version V1.5.2 for publication as version V1.6.1.

TS 100 392-18-2 (V1.1.1): "Terrestrial Trunked Radio (TETRA) Voice plus Data (V+D) and Direct Mode Operation (DMO); Part 18: Air interface optimized applications; Sub-part 2: Net Assist Protocol (NAP)".

TS 100 392-18-3 (V1.2.1): "Terrestrial Trunked Radio (TETRA) Voice plus Data (V+D) and Direct Mode Operation (DMO); Part 18: Air interface optimized applications; Sub-part 3: Direct mode Over The Air Management protocol (DOTAM)".

TS 101 975 (V1.2.1): "Terrestrial Trunked Radio (TETRA); RF Sensitive Area Mode".

4.2 Conformance testing

EN 300 394-1 (V3.2.1): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio".

NOTE: At the time of writing the document was at WG3 as version V3.1.x for OAP as V3.2.0.

4.3 Speech codec

EN 300 395-1 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 1: General description of speech functions".

EN 300 395-2 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 2: TETRA codec".

EN 300 395-3 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 3: Specific operating features".

EN 300 395-4 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 4: Codec conformance testing".

4.4 Direct Mode Operation (DMO)

EN 300 396-1 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 1: General network design".

NOTE: At the time of writing the document was in OAP as version V1.2.0.

EN 300 396-2 (V1.4.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 2: Radio aspects".

NOTE: At the time of writing the document was in OAP as version V1.4.0.

EN 300 396-3 (V1.4.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 3: Mobile Station to Mobile Station (MS-MS) Air Interface (AI) protocol".

NOTE: At the time of writing the document was in OAP as version V1.4.0.

EN 300 396-4 (V1.4.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 4: Type 1 repeater air interface".

NOTE: At the time of writing the document was in OAP as version V1.4.0.

EN 300 396-5 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 5: Gateway air interface".

NOTE: At the time of writing the document was in OAP as version V1.3.0.

EN 300 396-6 (V1.5.1): "Terrestrial Trunked Radio (TETRA); Direct Mode Operation (DMO); Part 6: Security".

NOTE: At the time of writing the document was at WG6 as version V1.4.3 for OAP as version V1.5.0.

4.5 Subscriber Identity Module (SIM)

ES 200 812-1 (V2.2.5): "Terrestrial Trunked Radio (TETRA); Subscriber Identity Module to Mobile Equipment (TSIM-ME) interface; Part 1: Universal Integrated Circuit Card (UICC); Physical and logical characteristics".

TS 100 812-1 (V2.2.5): "Terrestrial Trunked Radio (TETRA); Subscriber Identity Module to Mobile Equipment (TSIM-ME) interface; Part 1: Universal Integrated Circuit Card (UICC); Physical and logical characteristics".

ES 200 812-2 (V2.4.2): "Terrestrial Trunked Radio (TETRA); Subscriber Identity Module to Mobile Equipment (TSIM-ME) interface; Part 2: Universal Integrated Circuit Card (UICC); Characteristics of the TSIM application".

EN 300 812-3 (V2.3.1): "Terrestrial Trunked Radio (TETRA); Subscriber Identity Module to Mobile Equipment (SIM-ME) interface; Part 3: Integrated Circuit (IC); Physical, logical and TSIM application characteristics".

4.6 Regulatory

EN 301 489-18 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 18: Specific conditions for Terrestrial Trunked Radio (TETRA) equipment".

EN 302 561 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land mobile service; Radio equipment using constant or non-constant envelope modulation operating in a channel bandwidth of 25 kHz, 50 kHz, 100 kHz or 150 kHz; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive".

NOTE: This document replaces EN 303 035-1 and EN 303 035-2.

4.7 Other standards and specifications

TS 102 232-1 (V2.8.1): "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1: Handover specification for IP delivery".

ES 201 671 (V3.1.1): "Lawful Interception (LI); Handover interface for the lawful interception of telecommunications traffic".

TS 101 671 (V3.8.1): "Lawful Interception (LI); Handover interface for the lawful interception of telecommunications traffic".

NOTE: TS 101 671 (V3.8.1) adds extensions and corrects identified mistakes and should be used as the normative reference.

TS 101 747 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); IP Interworking (IPI)".

TS 101 789-1 (V1.1.2): "Terrestrial Trunked Radio (TETRA); TMO Repeaters; Part 1: Requirements, test methods and limits".

EN 301 040 (V2.1.1): "Terrestrial Trunked Radio (TETRA); Security; Lawful Interception (LI) interface".

EN 302 109 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Security; Synchronization mechanism for end-to-end encryption".

ES 202 109 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Security; Synchronization mechanism for end-to-end encryption".

4.8 Technical reports and ETSI guides

ETR 300-4 (1997): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Designers' guide; Part 4: Network management".

TR 101 052 (V1.1.1): "Security Algorithms Group of Experts (SAGE); Rules for the management of the TETRA standard authentication and key management algorithm set TAA1".

TR 101 053-1 (V1.1.2): "Security Algorithms Group of Experts (SAGE); Rules for the management of the TETRA standard encryption algorithms; Part 1: TEA1".

TR 101 053-2 (V2.2.3): "Security Algorithms Group of Experts (SAGE); Rules for the management of the TETRA standard encryption algorithms; Part 2: TEA2".

TR 101 053-3 (V1.1.3): "Security Algorithms Group of Experts (SAGE); Rules for the management of the TETRA standard encryption algorithms; Part 3: TEA3".

TR 101 053-4 (V1.1.2): "Security Algorithms Group of Experts (SAGE); Rules for the management of the TETRA standard encryption algorithms; Part 4: TEA4".

TR 101 448 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Functional requirements for the TETRA ISI derived from Three-Country Pilot Scenarios".

TR 101 977 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Study of the suitability of the GSM Adaptive Multi-Rate (AMR) speech codec for use in TETRA".

TR 101 987 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Proposed Air Interface Enhancements for TETRA Release 2; Analysis and Feasibility Assessment".

TR 102 021-1 (V1.3.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 1: General Overview".

TR 102 021-2 (V1.3.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 2: High Speed Data".

TR 102 021-3 (V1.1.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2; Part 3: Codec".

TR 102 021-4 (V1.4.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 4: Air Interface Enhancements".

TR 102 021-5 (V1.2.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 5: Interworking and roaming".

TR 102 021-6 (V1.2.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 6: Smart Card (SC) and Subscriber Identity Module (SIM)".

TR 102 021-7 (V1.3.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 7: Security".

TR 102 021-8 (V1.1.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2; Part 8: Air - Ground - Air services".

TR 102 021-9 (V1.2.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 9: Peripheral Equipment Interface".

TR 102 021-10 (V1.1.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 10: Local Mode Broadband".

TR 102 021-11 (V1.1.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specification TETRA Release 2.1; Part 11: Over The Air Management".

TR 102 021-12 (V1.1.1): "Terrestrial Trunked Radio (TETRA); User Requirement Specifications TETRA Release 2.1; Part 12; Direct Mode Operation".

NOTE: At the time of writing the document was in preparation at WG1 as version 0.0.x for TC TETRA approval.

EG 202 118 (V1.1.1): "Services and Protocols for Advanced Networks (SPAN); The structure of the TETRA numbering resource, interworking and high level policy for administration".

TR 102 300-3 (V1.3.3): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Designers' guide; Part 3: Direct Mode Operation (DMO)".

TR 102 300-5 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Designers' guide; Part 5: Guidance on Numbering and addressing".

ETSI TR 102 300-6 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Designers guide; Voice plus Data; Part 6: Air-Ground-Air".

NOTE: At the time of writing the document was in preparation for publication.

TR 102 459 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); TETRA Air-Ground-Air Services (AGA); Systems reference document".

TR 102 491 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); TETRA Enhanced Data Service (TEDS); System reference document".

TR 102 512 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Security; Security requirements analysis for modulation enhancements to TETRA".

TR 102 513 (V1.1.1): "Terrestrial Trunked Radio (TETRA); PSS TEDS spectrum feasibility study".

TR 102 580 (V1.1.1): "Terrestrial Trunked Radio (TETRA); TETRA Enhanced Data Service (TEDS) Designers' Guide (DG)".

TR 102 582 (V1.1.1): "Terrestrial Trunked Radio (TETRA); Evaluation of low rate (2,4 kbit/s) speech codec".

TR 102 621 (V1.1.1): "Terrestrial Trunked Radio (TETRA); TWC2007 Future of TETRA workshop report".

TR 102 628 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); System reference document; Land Mobile Service; Additional spectrum requirements for future Public Safety and Security (PSS) wireless communication systems in the UHF frequency range".

TR 102 753 (V1.1.1): "Terrestrial Trunked Radio (TETRA); TETRA mobiles moving at high velocity".

History

Document history		
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