Draft ETSI EN 300 392-3-3 V1.4.0 (2017-09)

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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)

Reference
REN/TCCE-03248

Keywords
interworking, radio, TETRA, V+D

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This draft European Standard (EN) has been produced by ETSI Technical Committee TETRA and Critical Communications Evolution (TCCE), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document is part 3, sub-part 3 of a multi-part deliverable covering the Voice plus Data (V+D), as identified below:

ETSI EN 300 392-1: "General network design";

ETSI EN 300 392-2: "Air Interface (AI)";

ETSI EN 300 392-3: "Interworking at the Inter-System Interface (ISI)":

ETSI EN 300 392-3-1: "General design";

ETSI EN 300 392-3-2: "Additional Network Feature Individual Call (ANF-ISIIC)";

ETSI EN 300 392-3-3: "Additional Network Feature Group Call (ANF-ISIGC)";

ETSI EN 300 392-3-4: "Additional Network Feature Short Data Service (ANF-ISISDS)";

ETSI EN 300 392-3-5: "Additional Network Feature for Mobility Management (ANF-ISIMM)";

ETSI TS 100 392-3-6: "Speech format implementation for circuit mode transmission";

ETSI TS 100 392-3-7: "Speech Format Implementation for Packet Mode Transmission";

ETSI TS 100 392-3-8: "Generic Speech Format Implementation";

ETSI ETS 300 392-4: "Gateways basic operation";

ETSI EN 300 392-5: "Peripheral Equipment Interface (PEI)";

ETSI EN 300 392-7: "Security";

ETSI EN 300 392-9: "General requirements for supplementary services";

ETSI EN 300 392-10: "Supplementary services stage 1";

ETSI EN 300 392-11: "Supplementary services stage 2";

ETSI EN 300 392-12: "Supplementary services stage 3";

ETSI ETS 300 392-13: "SDL model of the Air Interface (AI)";

ETSI ETS 300 392-14: "Protocol Implementation Conformance Statement (PICS) proforma specification";

ETSI TS 100 392-15: "TETRA frequency bands, duplex spacings and channel numbering";

ETSI TS 100 392-16: "Network Performance Metrics";

ETSI TR 100 392-17: "TETRA V+D and DMO specifications";

ETSI TS 100 392-18: "Air interface optimized applications".

NOTE 1: 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.

NOTE 2: Some parts are also published as Technical Specifications such as ETSI TS 100 392-2 and those may be the latest version of the document.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document defines the Terrestrial Trunked Radio system (TETRA) supporting Voice plus Data (V+D). It specifies:

- general design aspects (e.g. reference points, numbering and addressing, or protocol architecture);
- the interworking between TETRA networks;
- the interworking of TETRA networks with other networks, via gateways;
- the supplementary services applicable to the basic TETRA tele- or bearer services.

The TETRA V+D interworking - basic operation part defines the interworking between TETRA networks over the corresponding interface: the Inter-System Interface (ISI). It comprises the following sub-parts:

- ISI general design;
- Additional Network Feature - ISI Individual Call (ANF-ISIIC);
- Additional Network Feature - ISI Group Call (ANF-ISIGC);
- Additional Network Feature - ISI Short Data Service (ANF-ISISD);
- Additional Network Feature - ISI Mobility Management (ANF-ISIMM);
- Speech Format Implementation for Circuit Mode Transmission;
- Speech Format Implementation for Packet Mode Transmission.

The present document is the ANF-ISIGC sub-part.

In analogy with Recommendation ITU-T I.130 [i.6], the stage one, stage two and stage three of the three level structure is used to describe the TETRA Inter-System Interface services as provided by European Private or Public Trunked Radio System operators:

- Stage 1, is an overall service description, from the service subscriber's and user's standpoint;
- Stage 2, identifies the functional capabilities and information flows needed to support the services described in stage 1; and

NOTE: The information flows in stage 2 have been drawn as Message Sequence Charts (MSC). Therefore PISN basic call information flows are also shown together with the ANF-ISIGC information flows.

- Stage 3, defines the signalling system protocols and switching functions needed to implement the services described in stage 1.

The present document details the Interworking Basic Operation of the Terrestrial Trunked Radio system (TETRA). Specifically this sub-part details the stage 1 aspects (overall service description) of the ANF-ISIGC as seen from the TETRA Switching and Maintenance Infrastructure point of view at the Inter-System Interface (ISI). It details the stage 2 aspects (functional partitioning) of ANF-ISIGC which includes the identification of the functional entities and the flows between them, and finally it details the stage 3 signalling protocols for the ANF-ISIGC services, i.e. the protocols at the relevant reference points between the functional entities defined in stage 2.

The ANF-ISIGC service specifies:

- TETRA Group Call Clear Speech over the ISI, acknowledged and unacknowledged;
- TETRA Group Call End-to-End Encrypted Speech over the ISI;
- TETRA Group Call Circuit Mode one slot data over the ISI;
- TETRA Group Call Circuit Mode one slot End-to-End Encrypted data over the ISI;
- TETRA Group Call Circuit Mode N × 2,4 kbit/s, N × 4,8 kbit/s or N × 7,2 kbit/s data, with N = 2, 3 or 4;

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- TETRA Group Call Circuit Mode N × 2,4 kbit/s N × 4,8 kbit/s or N × 7,2 kbit/s End-to-End Encrypted data, with N = 2, 3 or 4.

2 References

2.1 Normative 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 referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://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.

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

[1] ETSI EN 300 172: "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit-mode basic services [ISO/IEC 11572 (2000) modified]".

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

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

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

[5] ETSI EN 300 392-3-2: "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)".

[6] ETSI EN 300 392-3-5: "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)".

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

[8] ETSI EN 300 392-11-6: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 6: Call Authorized by Dispatcher (CAD)".

[9] ETSI EN/ETSI ETS 300 392-12 (all parts): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3".

[10] ETSI EN 300 395-2: "Terrestrial Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 2: TETRA codec".

[11] ISO/IEC 11572: "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit mode bearer services - Inter-exchange signalling procedures and protocol".

[12] ISO/IEC 11574: "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit-mode 64 kbit/s bearer services - Service description, functional capabilities and information flows".

[13] ISO/IEC 11582: "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Generic functional protocol for the support of supplementary services - Inter-exchange signalling procedures and protocol".

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