



SLOVENSKI STANDARD
oSIST prEN 300 392-9 V1.7.0:2019
01-november-2019

Prizemni snopovni radio (TETRA) - Govor in podatki (V+D) - 9. del: Splošne zahteve za dopolnilne storitve

Terrestrial Trunked Radio (TETRA) - Voice plus Data (V+D) - Part 9: General requirements for supplementary services

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 300 392-9 V1.7.1:2020](https://standards.iteh.ai/catalog/standards/sist/en-300-392-9-v1-7-1-2020)

Ta slovenski standard je istoveten z: **ETSI EN 300 392-9 V1.7.0 (2019-08)**

ICS:

33.070.10	Prizemni snopovni radio (TETRA)	Terrestrial Trunked Radio (TETRA)
-----------	---------------------------------	-----------------------------------

oSIST prEN 300 392-9 V1.7.0:2019 **en**

Draft **ETSI EN 300 392-9** V1.7.0 (2019-08)



**Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 9: General requirements for supplementary services**

[SIST EN 300 392-9 V1.7.1:2020](https://standards.iteh.ai/catalog/standards/sist/ea1cfc08-7247-4435-ba13-6e6e9c071971/sist-en-300-392-9-v1-7-1-2020)

<https://standards.iteh.ai/catalog/standards/sist/ea1cfc08-7247-4435-ba13-6e6e9c071971/sist-en-300-392-9-v1-7-1-2020>

Reference

REN/TCCE-03265

Keywords

supplementary service, TETRA, V+D

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

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

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

iTeh STANDARDS PREVIEW
(standards.iteh.ai)

Important notice

SIST EN 300 392-9 V1.7.1:2020
The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2019.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M™ logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	5
Foreword.....	5
Modal verbs terminology.....	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	8
3 Definition of terms, symbols, abbreviations and Functional Entities (FE)	8
3.1 Terms.....	8
3.2 Symbols.....	9
3.3 Abbreviations	9
3.4 Functional Entities (FE)	11
4 Supplementary service concepts	11
4.1 Stage 1, 2 and 3 descriptions	11
4.1.0 General Description	11
4.1.1 Stage 1 description.....	11
4.1.2 Stage 2 description.....	11
4.1.3 Stage 3 description.....	12
4.2 Concepts associated with supplementary services	12
5 Service primitives.....	12
5.1 Service primitive general description.....	12
5.2 Notification service primitive.....	13
6 Supplementary service invocation order	13
7 Transfer of information related to supplementary service at the MS interface	13
7.1 Methods of transportation	13
7.2 Call related service information	14
7.2.1 Facility information element general construction	14
7.2.2 Notification indicator information element.....	15
7.3 Call unrelated supplementary service information	15
8 SS PDU contents	16
8.0 SS PDU contents general	16
8.1 SS type	17
8.2 SS PDU type.....	17
8.3 Repeated information element or set of information elements.....	19
8.3.1 Range type information element.....	19
8.3.2 Response to a SS PDU including repeated information elements controlled by a range type information element.....	20
8.3.3 Information element number of XX	21
8.4 Encoding of other SS PDU elements.....	22
8.4.0 Encoding of other SS PDU elements general	22
8.4.1 User identity.....	22
8.4.2 Character string.....	24
8.4.3 External number.....	25
8.4.4 External call restriction.....	27
8.4.5 Activation, definition, and interrogation failure values	27
8.4.6 Manufacturer identifier information element.....	28
9 SS PDU routing	28
9.1 Actions at the SwMI receiving an SS PDU from a MS registered in this SwMI	28
9.2 SS PDU sent by a SwMI to a MS.....	29
9.2.0 SS PDU sent by a SwMI to a MS general.....	29
9.2.1 SS PDU addressed individually by a SwMI to an MS.....	29

9.2.2	SS PDU originated by a SwMI using a group address.....	30
9.2.3	Sending of SS PDU by the destination SwMI to MS.....	30
9.3	SS PDU transport by ANF-ISISS.....	30
10	ANF-ISISS.....	31
10.1	Service model.....	31
10.2	Service primitives.....	31
10.3	Protocol.....	32
10.3.1	Protocol general.....	32
10.3.2	Possible groupings of ISI SS PDUs and of invoked ANF-ISISSs.....	34
10.3.3	Void.....	34
11	Exceptional cases.....	34
11.1	ISI exceptional cases.....	34
11.1.0	General.....	34
11.1.1	Case a).....	35
11.1.1.1	Call unrelated ANF-ISISS PDU.....	35
11.1.1.2	Call related ANF-ISISS PDU.....	35
11.1.2	Case b).....	35
11.1.3	Case c).....	36
11.1.3.1	Case c) General.....	36
11.1.4	Case d).....	36
11.1.4.0	Case d) general.....	36
11.1.4.1	Cases d.1) and d.2).....	36
11.1.4.2	Case d.3).....	37
11.2	Exceptional cases at the air interface.....	37
11.2.1	No ISI involved.....	37
11.2.2	ISI involved.....	38
12	Generic specification of activation/deactivation, definition and interrogation operations.....	38
12.1	Stage 2 description.....	38
12.2	Stage 3 description.....	39
13	Authentication issues.....	39
13.1	Authentication requirements for TETRA supplementary services.....	39
13.2	The use of security class to meet authentication requirements for TETRA supplementary services.....	40
13.2.0	General.....	40
13.2.1	Class 1.....	40
13.2.2	Class 2.....	40
13.2.3	Class 3.....	40
13.2.4	Impact of ISI.....	40
13.2.5	Security of data within a SwMI.....	40
Annex A (informative):	Definition of the ISI operation.....	41
Annex B:	Void.....	42
Annex C:	Void.....	43
Annex D (informative):	Change requests.....	44
Annex E:	Void.....	45
History.....		46

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

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 9 of a multi-part deliverable covering the Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D) and Direct Mode Operation (DMO), as identified below:

- 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 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";
- Part 15: "TETRA frequency bands, duplex spacings and channel numbering";
- Part 16: "Network Performance Metrics";
- Part 17: "TETRA V+D and DMO specifications";
- Part 18: "Air interface optimized applications";
- Part 19: "Interworking between TETRA and Broadband systems".

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

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.

iteh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 300 392-9 V1.7.1:2020](#)

<https://standards.iteh.ai/catalog/standards/sist/ealcf08-7247-4435-ba13-6e6e9c071971/sist-en-300-392-9-v1-7-1-2020>

1 Scope

The present document is applicable to any TETRA terminal equipment (Mobile Station (MS)) and to any TETRA network (Switching and Management Infrastructure (SwMI)) which support at least one TETRA Supplementary Service (SS). In addition, its routing requirements of supplementary service information are applicable to any TETRA network with a Voice plus Data (V+D) Inter-System Interface (ISI) to another TETRA network which supports at least one TETRA SS.

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

NOTE 2: Note that for the TETRA standards, the reference is always to a European Standard (ETS EN 300 xxx) if such has been published, but the latest version of that standard can be either an EN or a Technical Specification (ETSI TS 100 xxx), even if this is not visible in the reference list.

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

- [1] ETSI EN 300 392-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design".
- [2] ETSI EN 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".
- [3] ETSI EN 300 392-3-9: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 9: Transport layer independent, General design".
- [4] Void.
- [5] Void.
- [6] ETSI EN 300 392-7: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".
- [7] ETSI EN 300 392-10-6: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 6: Call Authorized by Dispatcher (CAD)".
- [8] ETSI EN/ETS 300 392-11 (all parts): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2".
- [9] ETSI EN/ETS 300 392-12 (all parts): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3".
- [10] ISO/IEC 11571 (1998): "Information technology -- Telecommunications and information exchange between systems -- Private Integrated Services Networks -- Addressing".
- [11] Void.
- [12] Void.

- [13] Recommendation ITU-T I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [14] Recommendation ITU-T E.164: "The international public telecommunication numbering plan".
- [15] Recommendation ITU-T X.121: "International numbering plan for public data networks".
- [16] Void.
- [17] Void.
- [18] Void.
- [19] Void.
- [20] ETSI ETS 300 392-12-7: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 7: Short Number Addressing (SNA)".
- [21] ISO/IEC 10646: "Information technology -- Universal Coded Character Set (UCS)".
- [22] ETSI TS 100 392-18-3: "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)".
- [23] ETSI EN 300 392-3-10: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 10: General design, PSS1 over E.1".
- [24] ETSI EN 300 392-3-11: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 11: General design, SIP/IP".

2.2 Informative 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.

NOTE 1: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

NOTE 2: Note that for the TETRA standards, the reference is always to a European Standard (ETSI EN 300 xxx) if such has been published, but the latest version of that standard can be either an EN or a Technical Specification (ETSI TS 100 xxx), even if this is not visible in the reference list.

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

3 Definition of terms, symbols, abbreviations and Functional Entities (FE)

3.1 Terms

For the purposes of the present document, the terms given in ETSI EN 300 392-2 [2] and the following apply:

affected user: user who is subject to the operation

affected user SwMI: SwMI where the affected user is currently registered

authorized user: user who is responsible for the definition, activation and deactivation of the service

NOTE: The authorized user may also interrogate the service. Affected user and served user may also be authorized user as defined in each supplementary service.

authorized user SwMI: SwMI where the authorized user is currently registered

call related service: service requested from call set-up initiation until call disconnection and related to that call

NOTE: The call-related service can also be valid a certain short time after disconnection but before next call set-up is initiated.

call unrelated service: service either requested outside a call or inside a call but not referring to that call

ISI Mediation Function: entity which provides the services that are not supported by the transport layer protocol to different ANF-ISI entities

served user: user for whom the supplementary service is invoked

served user SwMI: SwMI where the served user is currently registered

user: entity using the services of a telecommunications network via an externally accessible service access point

NOTE: A user may be a person or an application process.

user application: application process which acts as a user

NOTE: See definition of **user**.

3.2 Symbols

Void.

3.3 Abbreviations

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

ACK	ACKnowledgement
AI	Air Interface
ANF	Additional Network Feature
ANF-ISIGC	Additional Network Feature - Inter-System Interface Group Call
ANF-ISIMM	Additional Network Feature - Inter-System Interface Mobility Management
ANF-ISISS	Additional Network Feature - Inter-System Interface Supplementary Service
APDU	Application Packet Data Unit
APP	APProved
CC PDU	Call Control Protocol Data Unit
DMO	Direct Mode Operation
DOTAM	Direct mode Over The Air Management protocol
EPT	ETSI Project TETRA
ETS	European Telecommunication Standard
FE	Functional Entity
GSSI	Group Short Subscriber Identity
GTSI	Group TETRA Subscriber Identity
IP	Internet Protocol
ISI SS	Inter System Interface Supplementation Service
ISI	Inter-System Interface
ISISS	Inter-System Interface Supplementary Service
ISSI	Individual Short Subscriber Identity
ITSI	Individual TETRA Subscriber Identity
ITU	International Telecommunication Union
MAC	Media Access Control
MCC	Mobile Country Code
MLE	Mobile Link Entity

MNC	Mobile Network Code
MNI	Mobile Network Identity
MS	Mobile Station
MS-ISDN	Mobile Station ISDN number
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PISN	Private Integrated Services Network
PSS1	Private Signalling System no. 1
PSTN	Public Services Telephone Network
SAP	Service Access Point
SDL	(Functional) Specification and Description Language
SIP	Session Initiation Protocol
SS PDU	Supplementary Service Protocol Data Unit
SS	Supplementary Service

NOTE: The abbreviation SS is only used when referring to a specific supplementary service.

SSI	Short Subscriber Identity
SS-PDU	Supplementary Service PDU
SwMI	Switching and Management Infrastructure
TNCC-SAP	TETRA Network layer Call Control - Service Access Point
TNSS	TETRA Network layer Supplementary Service
TNSS-SAP	TETRA Network layer Supplementary Service - Service Access Point
TSI	TETRA Subscriber Identity
UCS	Universal Multiple-Octet Coded Character Set, also known as Universal Character Set
UCS-2	Universal Character Set coded in 2 octets
UTF-16BE	Unicode Transformation Format serialized as two bytes in Big-Endian format
V+D	Voice plus Data
WG3	TC TETRA Working Group 3
XX	generic name of an information element

Supplementary Service abbreviations

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

NOTE 1: Supplementary service abbreviations are also used without "SS-" preamble e.g. "SS-AL" and "AL" are used as appropriate.

NOTE 2: The supplementary services list contains also abbreviations that are not used in the present document.

SS-AL	Ambience Listening
SS-AP	Access Priority
SS-AS	Area Selection
SS-BIC	Barring of Incoming Calls
SS-BOC	Barring of Outgoing Calls
SS-CAD	Call Authorized by Dispatcher
SS-CCBS	Call Completion on Busy Subscriber
SS-CCNR	Call Completion on No Reply
SS-CF	Call Forwarding
SS-CFB	Call Forwarding on Busy
SS-CFNR	Call Forwarding on No Reply (generic for both CFNRy and CFNRc)
SS-CFNRc	Call Forwarding on Mobile Subscriber Not Reachable
SS-CFNRy	Call Forwarding on No Reply
SS-CFU	Call Forwarding Unconditional
SS-CI	Call Identification
SS-CLIP	Calling Line Identification Presentation
SS-CLIR	Calling Line Identification Restriction
SS-COLP	COnnected Line identification Presentation
SS-COLR	COnnected Line identification Restriction
SS-CR	Call Report
SS-CRT	Call Retention
SS-CW	Call Waiting
SS-DGNA	Dynamic Group Number Assignment

SS-DL	Discreet Listening
SS-HOLD	call HOLD
SS-IC	Include Call
SS-LE	Late Entry
SS-LSC	List Search Call
SS-PC	Priority Call
SS-PPC	Pre-emptive Priority Call
SS-SNA	Short Number Addressing
SS-TPI	Talking Party Identification

3.4 Functional Entities (FE)

The functional model for each supplementary service is comprised of a number of FEs. The FEs below should always have the following definitions:

- FE1 served user's service agent;
- FE2 SwMI service control functional entity;
- FE3 authorized user's service agent;
- FE5 service agent of the user affected by service operation;
- FE6 service agent of second listening party;
- FE7 service agent of dispatcher (in the case of SS-CAD) or of monitoring user (in the case of SS-DL);
- FE8 service agent of user removed from a call during a pre-emptive priority call;
- FE9 service agent of user informed that another user has been removed from a call during a pre-emptive priority call;
- FE10 service agent of user affected by management functions.

FE2, the SwMI functional entity, may be split into secondary FEs when needed for a given supplementary service. These FEs are called FE2x in the corresponding stage 2 description (in the related ETSI EN/ETS 300 392-11 [8]).

4 Supplementary service concepts

4.1 Stage 1, 2 and 3 descriptions

4.1.0 General Description

Supplementary service descriptions are covered in 3 stages according to the method described in Recommendation ITU-T I.130 [13], each stage in a separate document. The contents of each stage description are described in the following clauses.

4.1.1 Stage 1 description

This stage is the overall service description from the user viewpoint and also details the interaction of the service with other supplementary services.

4.1.2 Stage 2 description

Stage 2 identifies the functional capabilities and the information flows needed to support the supplementary service as specified in its stage 1 description. It defines the FEs, the information flow between these entities, the FE actions and the allocation of FEs to physical locations.