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**Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 10: Supplementary services stage 1;
Sub-part 7: Short number addressing**

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Terrestrial Trunked Radio (TETRA) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the One-step Approval Procedure phase of the ETSI standards approval procedure.

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".

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
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Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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1 Scope

This European Telecommunication Standard (ETS) defines the stage 1 description of the Short Number Addressing supplementary service (SS-SNA) for the Trans-European Trunked Radio (TETRA) as provided by European operators. The stage 1 description is an overall service description from the users point of view but does not deal with the details of the human interface itself (see ITU-T Recommendation I.130 [1]).

SS-SNA enables a user to send an abbreviated number instead of a full identity to the infrastructure and additionally to invoke other supplementary services and/or override the invocation of still other ones.

This ETS specifies the service description of the supplementary service and the procedures to be expected with successful and unsuccessful outcomes. In addition the ETS specifies the interactions with other TETRA supplementary services and inter-working considerations.

Charging principles are outside the scope of this ETS.

2 References

This ETS incorporates by undated reference, provisions from other publications. These 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] ITU-T Recommendation I.130: "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [2] ITU-T Recommendation Z.100: "CCIT specification and description language (SDL)".
- [3] ETS 300 392-9: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 9: General requirements for supplementary services".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the definitions of ETS 300 392-9 [3] apply, except for those of authorized user and served user, which are given below:

authorized user: User who is authorized to define short numbers. The authorized user may also interrogate the infrastructure about the short number definitions.

served user: User who may use invoke SS-SNA.

3.2 Abbreviations

3.2.1 General abbreviations

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

AI	Air Interface
GTSI	Group TETRA Subscriber Identity
ISDN	Integrated Services Digital Network
ISI	Inter-System Interface
ITSI	Individual TETRA Subscriber Identity
LS	Line Station
MS	Mobile Station
PEI	Peripheral Equipment Interface
PICS	Protocol Implementation Conformance Statement
SDL	(Functional) Specification and Description Language
SS	Supplementary Service
V+D	Voice plus Data

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

TETRA Trans-European Trunked Radio

3.2.2 Supplementary service abbreviations

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

AP	Access Priority
AS	Area Selection
BIC	Barring of Incoming Calls
BOC	Barring of Outgoing Calls
CAD	Call Authorized by Dispatcher
CCBS	Call Completion on Busy Subscriber
CLIR	Calling/Connected Line Identification Restriction
COLP	Connected Line identification Presentation
PC	Priority Call
PPC	Pre-emptive Priority Call
SNA	Short Number Addressing
TPI	Talking Party Identification

4 SS-SNA stage 1 specification

4.1 Description

4.1.1 General description

SS-SNA enables a user to send an abbreviated number instead of a full identity to the infrastructure and additionally to invoke other supplementary services and/or override the invocation of still other ones.

4.1.2 Qualifications on applicability to telecommunication services

Short number addressing shall be applicable to circuit mode TETRA teleservices and bearer services and to short data services and to certain supplementary services.

4.2 Procedures

4.2.1 Provision/Withdrawal

SS-SNA shall be provided to each individual subscriber on a subscription basis. It may be withdrawn at the request of the customer or for administrative reasons.

Authorized users shall be identified upon provision possibly for specific served users identified at the same time.

4.2.2 Normal procedures

4.2.2.1 Activation/Deactivation, definition, registration, interrogation, cancellation

4.2.2.1.1 Activation/Deactivation

This service shall be activated upon provision and deactivated upon withdrawal.

4.2.2.1.2 Definition

The authorized user may provide the infrastructure with the following SS-SNA definition for a served user:

- list of short numbers with corresponding TETRA identities (GTSI for a group, or ITSI for an individual subscriber), plus possibly the external subscriber numbers (see subclause 4.4.2);
- possibly list of supplementary service invocations and invocation overridings associated to each short number. Such list may include:
 - the invocation of the connected line identification presentation supplementary service (SS-COLP);
 - the invocation of the talking party identification supplementary service (SS-TPI), possibly with any of its two subscription options;
 - the overriding of the possible invocation of call barring supplementary services (i.e. SS-BIC, SS-BOC, SS-CAD for incoming calls and/or SS-CAD for outgoing calls);
 - the overriding of the possible automatic invocation of the calling line identification restriction supplementary service (SS-CLIR for calling user);
- possibly request to download the SS-SNA to the served user MS/LS.

If the above definition is valid for more than one served user, the authorized user may indicate it to the infrastructure.

If the infrastructure supports the definition procedure, it shall then acknowledge the definition request from the authorized user. If the infrastructure accepts a TETRA identity for a short number definition, but some supplementary service invocations and invocation overridings requested to be associated with the short number definition, the corresponding definition shall be considered as successful. The corresponding supplementary services should be indicated to the authorized user.

4.2.2.1.3 Registration

Authorized users shall be registered upon provision.

4.2.2.1.4 Interrogation

The authorized user may interrogate the infrastructure about SS-SNA short number definition for a served user. If so, such interrogation shall be either about all the short numbers or only for selected ones. If the infrastructure supports such interrogation, its response shall then provide the following information to the authorized user:

- list of short numbers with corresponding TETRA identities;
- list of supplementary service invocations and invocation overridings associated to each short number.

4.2.2.1.5 Cancellation

Not applicable.

4.2.2.2 Invocation and operation

SS-SNA shall be invoked when the infrastructure receives a service request incorporating a short number for the called party. Upon acceptance of the invocation the infrastructure shall convert the short number into the corresponding (full) address and the requested action shall proceed with the full identity.

If the definition of that short number requests that SS-COLP and/or SS-TPI be invoked, the infrastructure shall invoke them if such invocations are applicable to the requested service (e.g. basic service circuit call set-up). Similarly the infrastructure shall not invoke SS-BIC, SS-BOC, SS-CAD for incoming calls and/or SS-CAD for outgoing calls or SS-CLIR for calling user if the definition of that short number requests it.

4.2.3 Exceptional procedures

4.2.3.1 Activation/Deactivation, Definition, Registration, Interrogation, Cancellation

4.2.3.1.1 Activation/Deactivation

Not applicable.

4.2.3.1.2 Definition

If the infrastructure cannot accept a definition request, the corresponding failure cause shall be given to the authorized user. Examples of possible failure causes are:

- SS-SNA is not provided;
- unknown TETRA identity in the definition request (of the served user or for a specific short number).

4.2.3.1.3 Registration

Not applicable.

4.2.3.1.4 Interrogation

If the infrastructure cannot accept an interrogation request, the corresponding failure cause shall be given to the authorized user. Examples of possible failure causes are:

- SS-SNA is not provided;
- unknown TETRA identity in the definition request (of the served user or for a specific short number).

4.2.3.1.5 Cancellation

Not applicable.

4.2.3.2 Invocation/Operation

If the served user has attempted to establish a call in invoking SS-SNA while the infrastructure cannot operate the service, the call attempt shall be cleared and the corresponding SS-SNA failure cause shall be given to that user. Examples of possible failure causes are:

- SS-SNA is not provided to that user;
- the short number used in the SS-SNA invocation is not defined.

If the served user has attempted to establish a group call in invoking SS-SNA using a short number defined as corresponding to an individual subscriber (i.e. ITSI), it is an implementation matter whether the call attempt is cleared by the infrastructure or modified into an individual call. Similarly, if the served user has attempted to establish an individual call in invoking SS-SNA using a short number defined as corresponding to a group (i.e. GTSI), it is an implementation matter whether the call attempt is cleared by the infrastructure or modified into a group call.

4.3 Interactions with other supplementary services

As a general rule, it shall be possible to use SS-SNA short numbers when activating or defining a supplementary service, or placing an interrogation about it (e.g. to identify the served user for whom the corresponding request is being placed to the infrastructure). This is further developed for each supplementary service for which such procedures apply.

NOTE: As provided in subclauses 4.2.2.1.2 and 4.2.2.2, the definition of SS-SNA short numbers may be such that when the calling user establishes a call in invoking SS-SNA using such short numbers, other supplementary service may be invoked or overridden. Since the use of such SS-SNA short numbers in activation, definition or interrogation procedures for supplementary services never corresponds to the SS-SNA invocation for a call, such use will not result in any invocation or invocation overriding of other supplementary services.

4.3.1 Calling line identification presentation

Not applicable.

4.3.2 Connected line identification presentation

It shall be possible to define a SS-SNA short number in such a manner that when a call is established in invoking SS-SNA using that short number, this shall trigger the invocation of the connected line identification presentation supplementary service (SS-COLP). Otherwise SS-SNA shall not have any interaction with SS-COLP, i.e. SS-COLP operation shall result in the TETRA identity of the connected user/group being presented even if the calling user has used a SS-SNA short number for establishing the call.

4.3.3 Calling/Connected line identification restriction

It shall be possible to define a SS-SNA short number in such a manner that when a call is established in invoking SS-SNA using that short number while SS-CLIR for the calling user has been permanently activated, SS-CLIR for the calling user shall not be invoked.

4.3.4 Call report

Not applicable.

4.3.5 Talking party identification

It shall be possible to define a SS-SNA short number in such a manner that when a call is established in invoking SS-SNA using that short number, this shall trigger the invocation of the talking party identification supplementary service (SS-TPI) possibly with any of its two subscription options. Otherwise SS-SNA shall not have any interaction with SS-TPI, except for the possible use of SS-SNA short numbers by the SS-TPI authorized user in the activation, definition and/or interrogation procedures for that supplementary service.

4.3.6 Call forwarding unconditional

The identity of the forwarded-to user may be given using a SS-SNA short number when that user is defined (by the call forwarding authorized user).

4.3.7 Call forwarding on busy

The identity of the forwarded-to user may be given using a SS-SNA short number when that user is defined (by the call forwarding authorized user).

4.3.8 Call forwarding on no reply

The identity of the forwarded-to user may be given using a SS-SNA short number when that user is defined (by the call forwarding authorized user).

4.3.9 Call forwarding on not reachable

The identity of the forwarded-to user may be given using a SS-SNA short number when that user is defined (by the call forwarding authorized user).

4.3.10 List search call

It shall be possible to define a SS-SNA short number as corresponding to a list identified by a TETRA identity. When a call is established in invoking SS-SNA using that short number, this shall trigger the invocation of the list search call supplementary service.

4.3.11 Call authorized by dispatcher

It shall be possible to define a SS-SNA short number in such a manner that when a call is established in invoking SS-SNA using that short number while SS-CAD has been activated for outgoing calls and/or for incoming calls, those SS-CAD supplementary services shall not be invoked. Otherwise SS-SNA shall not have any interaction with SS-CAD, except for the possible use of SS-SNA short numbers by the SS-CAD authorized user in the definition and/or interrogation procedures for that supplementary service (for identifying the user subject to restrictions or for defining source or destination restrictions).

4.3.12 Area selection

SS-SNA shall not have any interaction with the area selection supplementary service (SS-AS), except for the possible use of SS-SNA short numbers by the SS-AS authorized user for identifying the served user or the group in the supplementary service definition.

4.3.13 Access priority

SS-SNA shall not have any interaction with the access priority supplementary service (SS-AP), except for the possible use of SS-SNA short numbers by the SS-AP authorized user for identifying the served user in the supplementary service definition.

4.3.14 Priority call

SS-SNA shall not have any interaction with the priority call supplementary service (SS-PC), except for the possible use of SS-SNA short numbers by the SS-PC authorized user for identifying the served user in the supplementary service definition.

4.3.15 Call waiting

Not applicable.

4.3.16 Call hold

SS-SNA shall not have any interaction with the call hold supplementary service.

4.3.17 Call completion on busy subscriber

SS-SNA shall not have any interaction with the call completion on busy subscriber supplementary service (SS-CCBS).

NOTE: If the served user has invoked SS-CCBS after having invoked SS-SNA in his failed call attempt, the constraint that the MS/LS of that user use again the SS-SNA short number when setting up the SS-CCBS call is not considered as a stage 1 description interaction.

4.3.18 Late entry

Not applicable.

4.3.19 Transfer of control

It shall possible to indicate the identity of the new (group) call owner using the SS-SNA short number corresponding to that identity, if such a short number has been defined.

4.3.20 Pre-emptive priority call

SS-SNA shall not have any interaction with the pre-emptive priority call supplementary service (SS-PPC), except for the possible use of SS-SNA short numbers by the SS-PPC authorized user for identifying the served user in the supplementary service definition.

4.3.21 Include call

It shall possible to indicate the identity of the individual subscriber or group to be included in a group call using the SS-SNA short number corresponding to that identity, if such a short number has been defined.

4.3.22 Advice of charge

SS-SNA shall not have any interaction with the advice of charge supplementary services.

4.3.23 Barring of outgoing calls

It shall be possible to define a SS-SNA short number in such a manner that when a call is established in invoking SS-SNA using that short number while the barring of outgoing calls supplementary service (SS-BOC) has been activated, SS-BOC shall not be invoked. Otherwise SS-SNA shall not have any interaction with SS-BOC, except for the possible use of SS-SNA short numbers by the SS-BOC authorized user in the definition and/or interrogation procedures for that supplementary service (for identifying the user subject to restrictions or for defining destination restrictions).

4.3.24 Barring of incoming calls

It shall be possible to define a SS-SNA short number in such a manner that when a call is established in invoking SS-SNA using that short number while the barring of incoming calls supplementary service (SS-BIC) has been activated, SS-BIC shall not be invoked. Otherwise SS-SNA shall not have any interaction with SS-BIC, except for the possible use of SS-SNA short numbers by the SS-BIC authorized user in the definition and/or interrogation procedures for that supplementary service (for identifying the user subject to restrictions or for defining source restrictions).

4.3.25 Discreet listening

Not applicable.

4.3.26 Ambience listening

If SS-SNA is available to him, the calling user shall be able to invoke the ambience listening supplementary service in invoking SS-SNA using the short number corresponding to the party the surrounding of whom is to be monitored.

4.3.27 Dynamic group number assignment

Not applicable.

4.3.28 Call completion on no reply

SS-SNA shall not have any interaction with the call completion on no reply supplementary service.

NOTE: See note in subclause 4.3.17.

4.3.29 Call retention priority

Not applicable.

4.4 Inter-working considerations

4.4.1 Inter-working between different TETRA networks

There shall be no restriction in the definition of SS-SNA short numbers regarding the choice of the corresponding TETRA identities. However, the checking of such identities when they correspond to a subscription in another network than that of the SS-SNA served user is outside the scope of SS-SNA standardization. Therefore, the authorized user should be careful not to define unknown TETRA identities for SS-SNA short numbers in such a case.

When the served user migrates in another network than that in which his subscription is recorded (the latter is called his home network), his SS-SNA invocation will fail if that other network does not support SS-SNA.

In addition, even if that other network supports SS-SNA, the control of other supplementary services defined for some SS-SNA short number (for the migrating served user) may not work. More precisely, contrary to the definition of some SS-SNA short number, the other network may:

- reject the invocation of SS-COLP or SS-TPI, if it does not support those supplementary services;
- invoke SS-TPI without subscription option(s), if it supports SS-TPI but not its subscription option(s);
- invoke SS-CAD for outgoing call or SS-BOC, if it does not accept such call barring overriding.

When this is the case for some SS-SNA short number defined for the migrating served user, the other network should inform that user about the limitations above which are applicable.

When the definition request of some SS-SNA short numbers for the served user sent to the infrastructure corresponds to TETRA identities subscribed in another network than the served user home network, and when that request includes the overriding of SS-CAD for incoming calls or of SS-BIC, the checking of whether or not such overriding will be accepted (by the other network) is outside the scope of SS-SNA standardization.

4.4.2 Inter-working with external networks

The infrastructure shall support the definition of SS-SNA short numbers corresponding to external subscriber numbers. The TETRA identities of the gateways to be used for the (external) calls of an external subscriber placed in invoking SS-SNA using the corresponding short number shall be part of the definitions of such short number.

4.5 Overall SDL

Figure 1 contains the dynamic description of SS-SNA using the Specification and Description Language (SDL) defined in ITU-T Recommendation Z.100 [2]. The SDL process represents the behaviour of the network in SS-SNA operation.

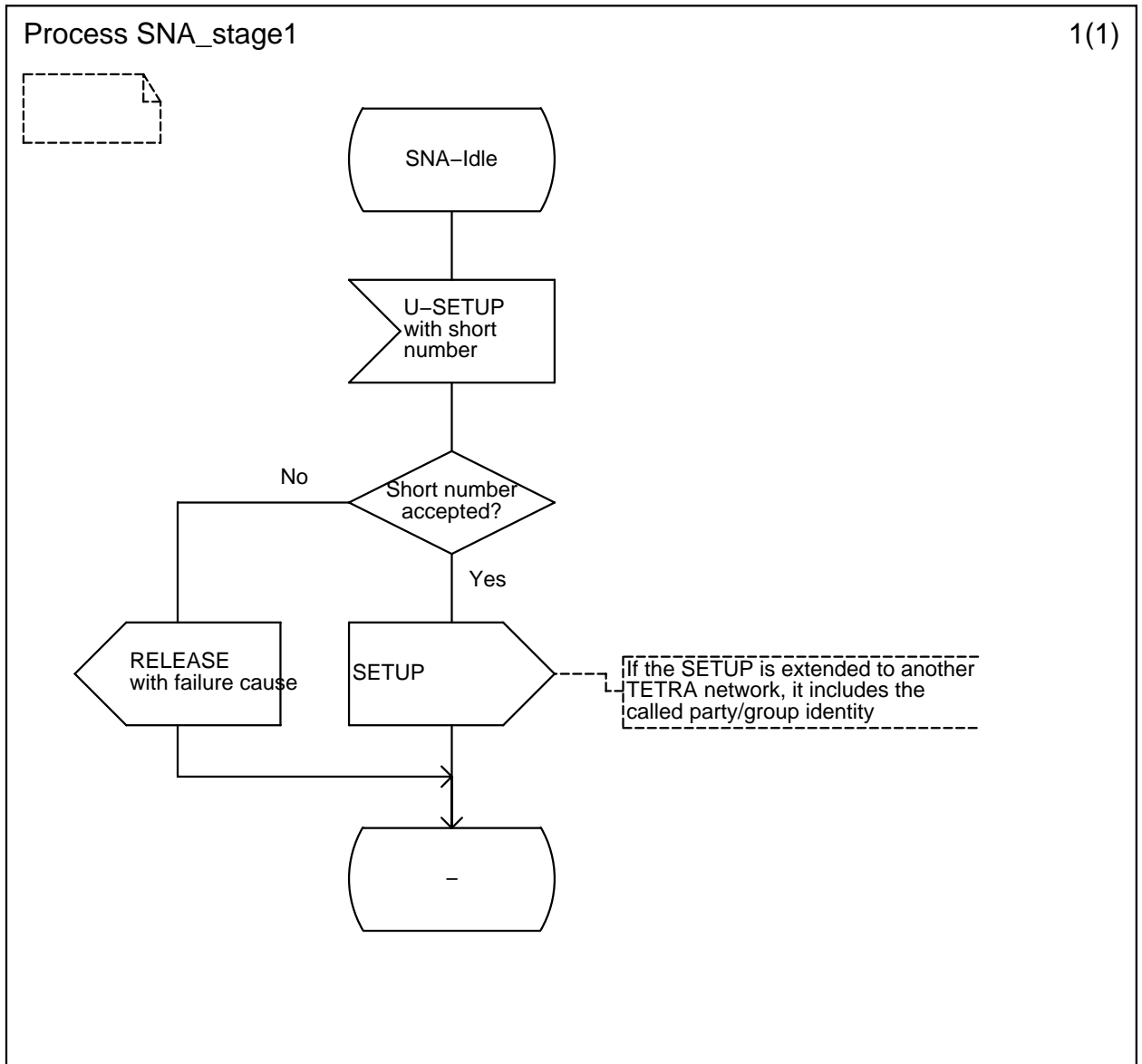


Figure 1: SS-SNA overview SDL

History

Document history	
April 1996	First Edition
April 1999	One-step Approval Procedure OAP 9935: 1999-04-30 to 1999-08-27