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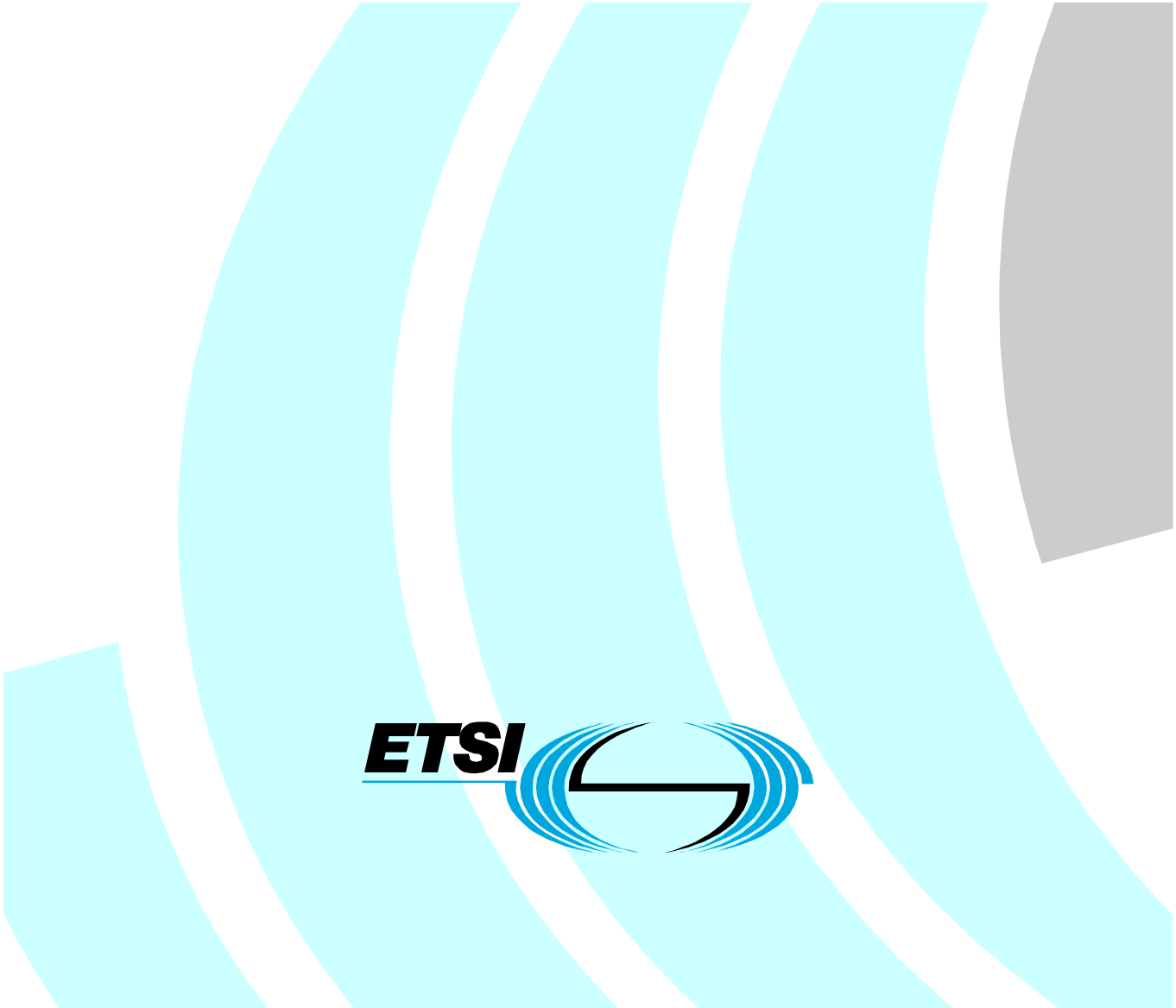
Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 10: Supplementary services stage 1;
Sub-part 22: Dynamic Group Number Assignment (DGNA)



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Contents

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Project Terrestrial Trunked Radio (TETRA).

The present document is part 10, sub-part 22 of a multi-part deliverable covering Voice plus Data (V+D), 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 Release 1.1 specifications".

National transposition dates	
Date of adoption of this EN:	25 January 2002
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Date of withdrawal of any conflicting National Standard (dow):	31 October 2002

1 Scope

The present document defines the stage 1 specifications [1] of the Supplementary Service Dynamic Group Number Assignment (SS-DGNA) for the Terrestrial Trunked RAdio (TETRA). Stage 1 is an overall service description from the users point of view but does not deal with the details of the human interface itself.

The present document specifies the service description of the supplementary service and the procedures to be expected with successful and unsuccessful outcomes. In addition the present specifies the interactions with other TETRA supplementary services and Interworking considerations.

Charging principles are outside the scope of the present document.

The SS-DGNA enables a served user to dynamically manage groups.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version 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: "Specification and description language (SDL)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

affected user: identified MS or LS user to whom the group is assigned (added to) or deassigned (removed from)

NOTE: Affected user can use the assigned group numbers and interrogate group information based on group numbers.

authorized user: user who is able to manage SS-DGNA on numbers he is authorized to

bearer service: type of telecommunication service that provides the capability for the transmission of signals between user-network interfaces

call related DGNA: creation of a group based on the participants of a referenced call and possibly also based on given affected user identities

call unrelated DGNA: creation of a group whose members (affected users) are solely based on given affected user identities

DGNA number: group number managed with SS-DGNA

Supplementary Service (SS): generally a supplementary service modifies or supplements a bearer service or a teleservice

NOTE: SS-DGNA supplementary service can be also offered to a customer as a stand-alone service.

Switching And Management Infrastructure (SwMI): all of the TETRA equipment for a Voice plus Data (V+D) network except for subscriber terminals

NOTE: The SwMI enables subscriber terminals to communicate with each other via the SwMI.

teleservice: type of telecommunications service that provides the complete capability, including terminal equipment functions, for communication between users according to agreed protocols

3.2 Abbreviations

3.2.1 General abbreviations

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

GTSI	Group TETRA Subscriber Identity
ISDN	Integrated Services Digital Network
SDL	(Functional) Specification and Description Language
SS	Supplementary Service

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

SwMI	Switching and Management Infrastructure
TETRA	TErrestrial Trunked RAdio

3.2.2 Supplementary service abbreviations

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

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 to Busy Subscriber
SS-CCNR	Call Completion on No Reply
SS-CFB	Call Forwarding on Busy
SS-CFNRy	Call Forwarding on No Reply
SS-CFNRc	Call Forwarding on Not Reachable
SS-CFU	Call Forwarding Unconditional
SS-CLIP	Calling Line Identification Presentation
SS-CLIR	Calling/Connected Line Identification Restriction
SS-COLP	COnnected Line identification Presentation
SS-CR	Call Report
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

4 Supplementary Service Dynamic Group Number Assignment (SS-DGNA) stage 1 specification

4.1 Description

4.1.1 General description

SS-DGNA may allow authorized users to create, modify, delete and interrogate group(s). The affected user may interrogate the group information based on group numbers.

The SS-DGNA may be used to group all the participants in an ongoing call (call related DGNA). SS-DGNA may also be used to create groups based on affected user identities, which may be individual users or groups (call unrelated DGNA). Also a combination of call related and call unrelated DGNA may be supported.

As a network option, call related DGNA may be invoked after the call release within a network dependent predefined time.

SS-DGNA shall support assignment of DGNA numbers to the affected users and deassignment of DGNA numbers from the affected users.

The lifetime and some other parameters of the SS-DGNA numbers can be managed as a part of the SS-DGNA.

4.1.2 Qualifications on applicability to telecommunication services

This supplementary service shall be applicable to all TETRA circuit mode teleservices and bearer services.

4.2 Procedures

4.2.1 Provision and withdrawal

SS-DGNA shall be available to all TETRA users who have subscribed to this service.

The affected user and the authorized user shall be identified upon provision. The provisioning actions are outside the scope of the present document.

The service may be provided or withdrawn by the service provider.

As a network option, a range of SS-DGNA numbers may be allocated to the authorized user for later definition.

4.2.2 Normal procedures

4.2.2.1 Activation and deactivation

SS-DGNA shall be permanently activated upon provision.

4.2.2.2 Definition/modification/deletion

For call unrelated SS-DGNA, the authorized user may be able to create/modify/delete a group based on a list of identities by sending a list of affected user identities to the system. That list can contain individual or group identities. List search numbers and SNA numbers shall not be part of the list.

The ownership of the defined SS-DGNA number is outside the scope of the present document.

For optional call related SS-DGNA, the system shall use the composition of the referenced call to create a new group. The call related definition may also add other affected users to the new group.

The authorized user may also modify SS-DGNA numbers.

The authorized user may also delete SS-DGNA numbers.

At the conclusion of the definition and modification process, assignment shall be invoked.

At the conclusion of the deletion the assignment shall be invoked upon request.

As an option, either the system may allocate a Group TETRA Subscriber Identity (GTSI) or the authorized user may choose a GTSI from his list of allocated SS-DGNA numbers.

4.2.2.3 Registration

The authorized user shall be registered. The registration actions are outside the scope of the present document.

4.2.2.4 Interrogation

SS-DGNA number and its parameters may be interrogated on a SS-DGNA number basis by the affected user and/or an authorized user. The results of an interrogation may be:

- list of currently attached group members;
- list of all members having group definition;
- list of group members who rejected assignment;
- list of all potential group members;
- mnemonic name;
- group identity attachment mode and class of usage;
- additional group information;
- set reference; and
- security related information.

The SwMI may interrogate the from the affecter user:

- list of all groups;
- list of DGNA groups;
- list of pre-programmed groups;
- groups attachment status; and
- security and additional group information.

The security and additional group information contents are outside the scope of the present document.

4.2.2.5 Cancellation

Not applicable.

4.2.2.6 Invocation and operation

After definition of a group, the system shall inform each member of the group of the new group identity by invoking assignment.

After modification of a group, the system shall inform the added/removed member of the group of the modification by invoking assignment.

After de-assignment of a group, the system shall inform each member of the group that the group identity shall no longer be valid by invoking assignment. The group identity may be made immediately invalid independently whether de-assignment is reached all group member or not.

If the authorized user sends a dynamic group composition which has already a group number allocated, the Switching and Management Infrastructure (SwMI) should reject the request and inform the served user.

The SS-DGNA operation shall become completed either when all the necessary information has been sent to the group members, or when the SS-DGNA number is deleted or after a certain time-out. The time-out value may be an operator option.

Upon completion there is no indication of the result of the SS-DGNA to the user who has requested the service.

4.2.3 Exceptional procedures

4.2.3.1 Activation and deactivation

Not applicable.

4.2.3.2 Definition

If the infrastructure cannot accept a definition request, then the cause shall be returned to the served user. Possible causes may be:

- request failed for any reason;
- group already exists, no changes done;
- user not authorized;
- not valid group identity;
- one or several affected users not valid or assignment not authorized, the failed affected users are indicated;
- insufficient information;
- allocation of group identity is only supported by SwMI;
- definition accepted by SwMI, security and additional group information not supported; or
- service not provided by the network (general error message).

4.2.3.3 Registration

Not applicable.

4.2.3.4 Interrogation

If the network cannot accept an interrogation request, the interrogating user shall receive a notification that the SS-DGNA interrogation was unsuccessful. The possible causes for rejection can be:

- request failed for any reason;
- not valid group identity;
- user not authorized;
- not valid user identity;
- rejected for security reasons; or
- requested interrogation type not supported.

4.2.3.5 Cancellation

Not applicable.

4.2.3.6 Invocation and operation

If the network cannot accept an invocation request the result is indicated as the definition/modification result, see clause 4.2.3.2.

4.3 Interactions with other supplementary services

4.3.1 Calling Line Identification Presentation (SS-CLIP)

SS-DGNA shall not have any interaction with SS-CLIP.

4.3.2 Connected Line identification Presentation (SS-COLP)

SS-DGNA shall not have any interaction with SS-COLP.

4.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)

SS-DGNA shall not have any interaction with SS-CLIR.

4.3.4 Call Report (SS-CR)

SS-DGNA shall not have any interaction with SS-CR.

4.3.5 Talking Party Identification (SS-TPI)

SS-DGNA shall not have any interaction with SS-TPI.

4.3.6 Call Forwarding Unconditional (SS-CFU)

SS-DGNA shall not have any interaction with SS-CFU.

4.3.7 Call Forwarding on Busy (SS-CFB)

SS-DGNA shall not have any interaction with SS-CFB.

4.3.8 Call Forwarding on No Reply (SS-CFNRy)

SS-DGNA shall not have any interaction with SS-CFNRy.

4.3.9 Call Forwarding on Not Reachable (SS-CFNRc)

SS-DGNA shall not have any interaction with SS-CFNRc.

4.3.10 List Search Call (SS-LSC)

Call unrelated SS-DGNA: list search numbers shall not be included into the definition list.

Call related SS-DGNA shall not have any interaction with SS-LSC. If some participants of the call have been selected by SS-LSC, the system shall use their attendant identity and not the list search number for the definition.

4.3.11 Call Authorized by Dispatcher (SS-CAD)

SS-DGNA shall not have any interaction with SS-CAD.

4.3.12 Short Number Addressing (SS-SNA)

The SNA is not applicable as an affected user identity in management part of SS-DGNA.

After definition SS-SNA may allocate a short number to the SS-DGNA number.

4.3.13 Area Selection (SS-AS)

SS-DGNA shall not have any interaction with SS-AS.

4.3.14 Access Priority (SS-AP)

SS-DGNA shall not have any interaction with SS-AP.

4.3.15 Priority Call (SS-PC)

SS-DGNA shall not have any interaction with SS-PC.

4.3.16 Call Waiting (SS-CW)

SS-DGNA shall not have any interaction with SS-CW.

4.3.17 Call Hold (SS-HOLD)

SS-DGNA shall not have any interaction with SS-HOLD.

4.3.18 Call Completion to Busy Subscriber (SS-CCBS)

SS-DGNA shall not have any interaction with SS-CCBS.

4.3.19 Late Entry (SS-LE)

SS-DGNA shall not have any interaction with SS-LE.

4.3.20 Transfer of Control (SS-TC)

Void

4.3.21 Pre-emptive Priority Call (SS-PPC)

SS-DGNA shall not have any interaction with SS-PPC.

4.3.22 Include Call (SS-IC)

SS-DGNA shall not have any interaction with SS-IC.

4.3.23 Advice of Charge (SS-AoC)

Void

4.3.24 Barring of Outgoing Calls (SS-BOC)

SS-DGNA shall not have any interaction with SS-BOC.

4.3.25 Barring of Incoming Calls (SS-BIC)

SS-DGNA shall not have any interaction with SS-BIC.

4.3.26 Discreet Listening (SS-DL)

SS-DGNA shall not have any interaction with SS-DL.

4.3.27 Ambience Listening (SS-AL)

SS-DGNA shall not have any interaction with SS-AL.

4.3.28 Dynamic Group Number Assignment (SS-DGNA)

Not applicable.

4.3.29 Call Completion on No Reply (SS-CCNR)

SS-DGNA shall not have any interaction with SS-CCNR.

4.3.30 Call Retention (SS-CR)

Not applicable.

4.4 Interworking considerations

If a user wants to use SS-DGNA management in a visited network, it implies that the service request shall be passed to the home SwMI of the group and the responses relayed back to the user via the visited network. The visited network needs to support SS-DGNA in the call related DGNA number definition.

4.5 Overall SDL

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

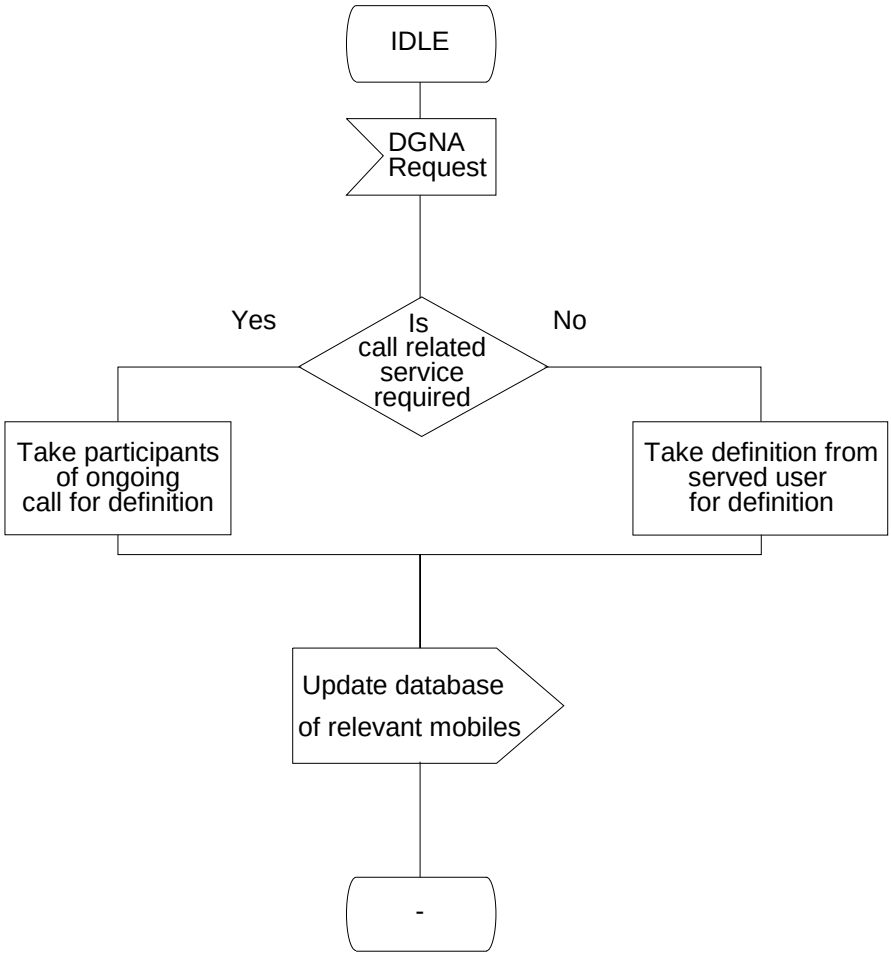

Figure 1: SS-DGNA supplementary service, overall SDL

History

Document history		
Edition 1	April 1996	Publication as ETS 300 392-10-22
V1.2.1	September 2001	One-step Approval Procedure OAP 20020125: 2001-09-26 to 2002-01-25
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