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Foreword

This European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

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: "Inter-working", (DE/RES-06001-3).

Part 4: "Gateways", (DE/RES-06001-4).

Part 5: "Terminal equipment interface", (DE/RES-06001-5).

Part 6: "Line connected stations", (DE/RES-06001-6).

Part 7: "Security".

Part 8: "Management services", (DE/RES-06001-8).

Part 9: "Performance objectives", (DE/RES-06001-9).

Part 10: "Supplementary services stage 1".

Part 11: "Supplementary services stage 2", (DE/RES-06001-11).

Part 12: "Supplementary services stage 3", (DE/RES-06001-12).

Part 13: "SDL Model of the Air Interface", (DE/RES-06001-13).

Part 14: "PICS Proforma", (DE/RES-06001-14).

Part 15: "Inter-working - Extended Operations", (DE/RES-06001-15).

Part 16: "Gateways for Supplementary Services", (DE/RES-06001-16).

Transposition dates	
Date of adoption of this ETS:	1 March 1996
Date of latest announcement of this ETS (doa):	31 July 1996
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Date of withdrawal of any conflicting National Standard (dow):	31 January 1997

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1 Scope

This European Telecommunication Standard (ETS) defines the stage 1 specifications of the Area Selection (AS) supplementary service for the Trans-European Trunked Radio (TETRA) as provided by European operators. 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.

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

Charging principles are outside the scope of this ETS.

Area Selection (AS) allows an authorized user to define areas for selection and a served user to choose, on a call by call basis, a selected area to be used for establishing a call.

2 Normative references

This ETS incorporates, by dated or undated reference, provisions from other publications. These normative 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] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".

[2] ITU-T Recommendation Z.100 (1993): "Specification and Description Language (SDL)".

3 Definitions and Abbreviation

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

authorized user: A user who can define areas.

selected area: Operator and/or user defined area invoked by a served user to restrict the call set up area.

served user: The originator of the call who invokes SS-AS for his call to be set-up within a defined area.

Switching and Management Infrastructure (SwMI): All of the TETRA equipment for a Voice plus Data (V+D) network except for subscriber terminals. The SwMI enables subscriber terminals to communicate with each other via the SwMI.

3.2 Abbreviations

3.2.1 General abbreviations

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

CAD	SS-Call Authorized by Dispatcher
GTSI	Group TETRA Subscriber Identity
ISDN	Integrated Services Digital Network
ITSI	Individual TETRA Subscriber Identity
SDL	(Functional) Specification and Description Language
SS	Supplementary Service

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

SwMI	Switching and Management Infrastructure
TETRA	Trans-European Trunked RAdio

3.2.2 Supplementary service abbreviations

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

AS	Area Selection
BOC	Barring of Outgoing Calls
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CR	Call Report

4 SS-AS stage 1 specification

4.1 Description

4.1.1 General description

Area Selection (AS) allows an authorized user to define areas for selection and a served user to choose, on a call by call basis, a selected area to be used for establishing a call. This SS-AS shall not restrict normal roaming (e.g. the call re-establishment facility). SS-AS may also be used to restrict areas for other services.

4.1.2 Qualifications on applicability to telecommunication services

This supplementary service shall be applicable independently to all TETRA teleservices and bearer services, to short data service and to certain supplementary services.

4.2 Procedures

4.2.1 Provision/Withdrawal

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

The service may be withdrawn by the service provider(s), or by pre-arrangement by the service provider.

As a network option, authorized users may define areas. If this option is supported, authorized users shall be identified upon provision.

A Switching and Management Infrastructure (SwMI) may offer more or less definitions than those specified below:

- all SwMI;
- home SwMI;
- visited SwMI;
- third SwMI (to be specified);
- within the calling party's cell;
- calling party's cell and adjacent cells;
- user specific areas.

4.2.2 Normal procedures

4.2.2.1 Activation, deactivation, definition, registration, interrogation and cancellation

4.2.2.1.1 Activation and deactivation

SS-AS shall be activated upon provision and deactivated upon withdrawal.

4.2.2.1.2 Definition

An authorized user shall be able to define areas for later invocation. Areas can also be predefined by the network. One or several user specific areas may be defined using a standardized procedure based on standard geographical co-ordinates.

Restrictions for area definition shall be an operator option.

4.2.2.1.3 Registration

An authorized user shall be required to be registered.

4.2.2.1.4 Interrogation

The served user shall be able to interrogate his/her defined areas with their definitions and the interrogation response shall contain all parameters which are relevant to the served user. These can be:

- service provided;

- areas available for the served user and their corresponding definition.

The authorized user may be able to interrogate areas available for a certain Individual TETRA Subscriber Identity (ITSI)/Group TETRA Subscriber Identity (GTSI) with their definitions and the interrogation response shall contain all parameters which are relevant to the interrogating user. These can be:

- areas available to the authorized user for definition and their corresponding definition.

The authorized user may interrogate SS-AS and the interrogation response shall contain all parameters which are relevant to the interrogating user. These can be:

- list of ITSI/GTSI for which the authorized user has defined areas.

4.2.2.1.5 Cancellation

Not applicable.

4.2.2.2 Invocation and operation

The SS-AS shall be invoked by the served user on a call per call basis. The area selection information shall be sent as part of the call set-up phase.

The AS information is a reference to a defined area. The call shall be set up only in the selected area.

The area used for a call set up shall be either a pre-set area that can be defined upon provision or redefined by an authorized user or an area selected by the calling user upon invocation.

4.2.3 Exceptional procedures

4.2.3.1 Activation, deactivation, definition, registration, interrogation and cancellation

4.2.3.1.1 Activation and deactivation

Not applicable.

4.2.3.1.2 Definition

If a definition is not acceptable the TETRA system shall send a rejection response with a suitable cause. Possible causes can be:

- service not provided;
- defined area larger than the provided area;
- not enough or unsuitable information;
- user not authorized to make an area definition for the used ITSI or GTSI.

4.2.3.1.3 Registration

Not applicable.

4.2.3.2 Interrogation

If an interrogation is not acceptable the TETRA system shall send a rejection response with a suitable cause. Possible causes can be:

- service not provided;
- not enough or unsuitable information;
- service not available;
- user not authorized to make area definition interrogation for the used ITSI or GTSI.

4.2.3.2.1 Cancellation

Not applicable.

4.2.3.3 Invocation and operation

When invoking SS-AS, the served user may select an undefined area. In this case the SwMI shall reject the call with an indication to the served user.

4.3 Interactions with other supplementary services

4.3.1 Calling line identification presentation

Area selection shall not have any interaction with calling line identification presentation.

4.3.2 Connected line identification presentation

Area selection shall not have any interaction with calling line identification presentation.

4.3.3 Calling/Connected line identification restriction

Area selection shall not have any interaction with calling/connected line identification restriction.

4.3.4 Call report

The area selection shall take precedence over SS-Call Report (CR). Call report shall not be forwarded to a called party who is outside the selected area until he returns inside the selected area.

4.3.5 Talking party identification

Area selection shall not have any interaction with talking party identification.

4.3.6 Call forwarding unconditional

The call may be forwarded as long as the diverted-to party is within the selected area.

4.3.7 Call forwarding on busy

The call may be forwarded as long as the diverted-to party is within the selected area.

4.3.8 Call forwarding on no reply

The call may be forwarded as long as the diverted-to party is within the selected area.

4.3.9 Call forwarding on not reachable

The call may be forwarded as long as the diverted-to party is within the selected area.

4.3.10 List search call

The area selection shall be applicable to each number in the list.

4.3.11 Call authorized by dispatcher

SS-Call Authorized by Dispatcher (CAD) shall take precedence over area selection. The dispatcher can change the area selected by the user.

4.3.12 Talking party identification

Area selection shall not have any interaction with talking party identification.

4.3.13 Area selection

Not applicable.

4.3.14 Access priority

Area selection shall not have any interaction with access priority.

4.3.15 Priority call

Area selection shall not have any interaction with priority call.

4.3.16 Call waiting

Area selection shall not have any interaction with call waiting.

4.3.17 Call hold

Area selection shall not have any interaction with call hold.

4.3.18 Call completion on busy subscriber

SS-Call Completion to Busy Subscriber (CCBS) may be invoked as long as the called party remains in the selected area. Once the called party moves out the selected area, SS-CCBS shall be automatically cancelled and the call shall not be set up.

4.3.19 Late entry

Area selection shall not have any interaction with late entry.

4.3.20 Transfer of control

Area selection shall not have any interaction with transfer of control.

4.3.21 Pre-emptive priority call

Area selection shall not have any interaction with pre-emptive priority call.

4.3.22 Include call

Area selection shall not have any interaction with include call.

4.3.23 Advice of charge

Area selection shall not have any interaction with advice of charge.

4.3.24 Barring of outgoing calls

Area selection shall not have any interaction with barring of outgoing calls. The SS-AS shall be restricted in accordance with SS-Barring of Outgoing Calls (BOC).

4.3.25 Barring of incoming calls

Area selection shall not have any interaction with barring of incoming calls.

4.3.26 Discreet listening

Area selection shall not have any interaction with discreet listening.

4.3.27 Ambience listening

Area selection shall not have any interaction with ambience listening.

4.3.28 Dynamic group number assignment

Area selection shall not have any interaction with dynamic group number assignment.

4.3.29 Call completion on no reply

SS-Call Completion on No reply (CCNR) may be invoked as long as the called party remains in the selected area. Once the called party moves out the selected area, SS-CCNR shall be automatically cancelled and the call shall not be set up.

4.3.30 Call retention priority

Area selection shall not have any interaction with call retention priority.

4.4 Inter-working considerations

The specific area definitions of different networks may be constructed differently, and the area selection may not be possible when a visiting mobile terminal wants to select areas outside of its home network. A mobile visiting another network may still select areas within its own network, or may use the standardized procedure built on geographical co-ordinates.

4.5 Overall SDL

Figure 1 contains the dynamic description of SS-AS 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-AS.

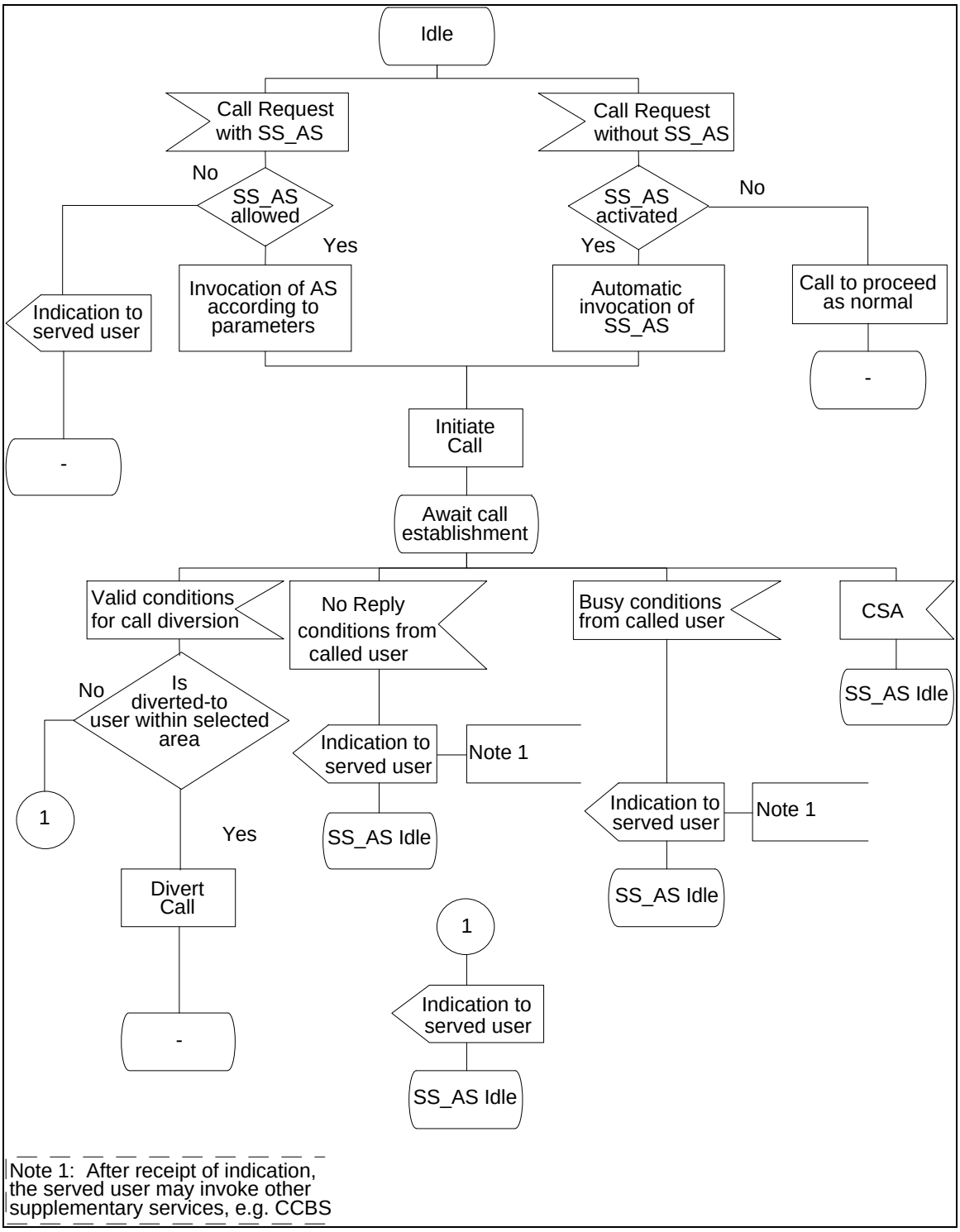

Figure 1: SS-AS, Overall SDL

History

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