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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).

<b>Transposition dates</b>	
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 Supplementary Service Late Entry (SS-LE) for the Trans-European 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.

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.

The SS-LE allows radio users to be informed of and, if they are concerned, to join an already existing multipoint speech 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 abbreviations

### 3.1 Definitions

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

**authorized user:** An identified user who is able to define the SS-LE parameters.

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

**forced late entry:** As a user application in the mobile station, the user may be forced to join the multipoint call as soon as a late entry broadcast or late entry paging message is received. If the user is already engaged in another communication, the user may be forced to join the highest priority call.

**late entry acknowledgement:** Indication sent in SS-LE messages by the Switching and Management Infrastructure (SwMI) to inform a member who would like to join the call that he has to inform the SwMI of his entering the call.

**late entry broadcast:** Indication sent by the SwMI to inform members of a multipoint call which are currently not already involved in this call that they can join directly an existing communication (a channel is already allocated in this cell).

**late entry paging:** Indication sent by the SwMI to inform members of a multipoint call which are currently not already involved in this call, that they need to ask for a communication channel for that call if they want to participate (a channel is not yet allocated in this cell).

**multipoint call:** A call supporting a point-to-multipoint teleservice or bearer service. It can be either a group call, an acknowledged group call or a broadcast call.

**Supplementary Service (SS):** A supplementary service modifies or supplements a bearer service or a teleservice. A supplementary service cannot be offered to a customer as a stand alone service. It should be offered in combination with a bearer service or a teleservice.

**teleservice:** A 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 this ETS, the following general abbreviations apply:

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 referring 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:

SS-AL	Ambience Listening
SS-AoC	Advice of Charge
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-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-TC	Transfer of Control
SS-TPI	Talking Party Identification



## **4 Supplementary Service Late Entry (SS-LE) stage 1 specification**

### **4.1 Description**

#### **4.1.1 General description**

During a multipoint speech call, the infrastructure shall send (when necessary) Late Entry indications related to this call to allow group members to join the ongoing speech call. This supplementary service may be used regardless of whether the members of the group are engaged in a call or not.

SS-LE shall be related to the called group identity.

#### **4.1.2 Qualifications on applicability to telecommunication services**

This supplementary service shall be applicable to all TETRA multipoint speech teleservices and bearer services.

### **4.2 Procedures**

#### **4.2.1 Provision and withdrawal**

The service provider may provide two services.

Service 1: provision and withdrawal of SS-LE shall be provided by pre-arrangement with the service provider against a specific Group TETRA Subscriber Identity (GTSI).

Service 2: provision and withdrawal of SS-LE shall be provided by pre-arrangement with the service provider to the authorized user. The SS-LE supplementary service can be withdrawn by the service provider for administrative purposes or at the request of the authorized user.

The authorized user shall be able to carry out the process of definition upon provision.

Late entry paging shall be a network implementation option which may be withdrawn for administrative reasons.

#### **4.2.2 Normal procedures**

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

###### **4.2.2.1.1 Activation and deactivation**

Service 1: the supplementary service shall be activated upon provision and deactivated upon withdrawal.

Service 2: the supplementary service shall be activated and deactivated upon request from the authorized user. In order to activate and/or deactivate the supplementary service the authorized user shall supply:

- 1) the group identity;
- 2) an applicable TETRA multipoint speech teleservice/bearer service.

###### **4.2.2.1.2 Definition**

The definition process shall be carried out upon provision. Additionally, a SwMI shall accept definition requests from the authorized user.

To define SS-LE the authorized user shall supply:

- 1) a specific group identity;
- 2) the applicable TETRA multipoint speech teleservice/bearer service.

#### **4.2.2.1.3 Registration**

Registration shall be used in order to identify the authorized user.

Service 2: the authorized user shall be provided with the list of GTSIs where he is able to carry out SS-LE procedures.

#### **4.2.2.1.4 Interrogation**

SS-LE may be interrogated on a GTSI basis by any member of the group or an authorized user.

The results of an interrogation shall be:

- 1) availability of the service against the GTSI;
- 2) activated state of the service.

#### **4.2.2.1.5 Cancellation**

Procedures for cancellation shall not be applicable to SS-LE.

#### **4.2.2.2 Invocation and operation**

##### **4.2.2.2.1 Invocation**

SS-LE shall be invoked by the network if SS-LE is activated for the service related to the called group identity.

##### **4.2.2.2.2 Operation**

SS-LE indications shall be sent for the duration of a multipoint call.

SS-LE indications contain relevant information on the group call. Actions due to SS-LE indications are outside the scope of this ETS.

NOTE: As a user application in the mobile station, the user may be forced to join the ongoing multipoint call as soon as he receives a late entry broadcast or paging message. If the user is already engaged in another communication, the user may be forced to join the highest priority call.

The periodicity of LE broadcasts is outside the scope of this ETS.

#### **4.2.3 Exceptional procedures**

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

###### **4.2.3.1.1 Activation and deactivation**

If the system cannot accept an activation or deactivation request, the authorized user shall receive notification that the SS-LE activation or deactivation was not successful. Possible causes can be:

- insufficient information;
- invalid GTSI;
- invalid basic service;
- user not authorized.

#### **4.2.3.1.2 Definition**

If the system cannot accept a definition request, the authorized user shall receive a notification that the SS-LE definition was not successful. Possible causes can be:

- insufficient information;
- invalid GTSI;
- invalid basic service;
- user not authorized.

#### **4.2.3.1.3 Registration**

Not applicable.

#### **4.2.3.1.4 Interrogation**

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

- service not provided by the network;
- interrogation against a number which is not a valid GTSI;
- interrogating user is not a member of the group or an authorized user.

#### **4.2.3.1.5 Cancellation**

Exceptional procedures shall not be applicable to SS-LE.

#### **4.2.3.2 Invocation and operation**

##### **4.2.3.2.1 Invocation**

Exceptional procedures shall not be applicable to SS-LE.

##### **4.2.3.2.2 Operation**

Exceptional procedures shall not be applicable to SS-LE.

#### **4.3 Interactions with other supplementary services**

Interactions with other TETRA supplementary services are specified below.

##### **4.3.1 Calling Line Identification Presentation (SS-CLIP)**

SS-LE shall not have any interaction with calling line identification presentation.

##### **4.3.2 Connected Line identification Presentation (SS-COLP)**

Not applicable.

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

SS-LE shall not have any interaction with calling/connected line identification restriction.

##### **4.3.4 Call Report (SS-CR)**

Not applicable.

**4.3.5 Talking Party Identification (SS-TPI)**

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

**4.3.6 Call Forwarding Unconditional (SS-CFU)**

Not applicable. If SS-LE is activated against the GTSI and this GTSI subsequently forwards all calls to the forwarded-to GTSI, the SS-LE functionality shall not be transferred to the forwarded-to GTSI. Only SS-LE related to the forwarded-to GTSI shall be applied.

**4.3.7 Call Forwarding on Busy (SS-CFB)**

Not applicable. If SS-LE is activated against the GTSI and this GTSI subsequently forwards all calls to the forwarded-to GTSI, the SS-LE functionality shall not be transferred to the forwarded-to GTSI. Only SS-LE related to the forwarded-to GTSI shall be applied.

**4.3.8 Call Forwarding on No Reply (SS-CFNRY)**

Not applicable.

**4.3.9 Call Forwarding on Not Reachable (SS-CFNRC)**

Not applicable. The GTSI cannot be not reachable.

**4.3.10 List Search Call (SS-LSC)**

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

**4.3.11 Call Authorized by Dispatcher (SS-CAD)**

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

**4.3.12 Short Number Addressing (SS-SNA)**

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

**4.3.13 Area Selection (SS-AS)**

SS-LE shall not have any interaction with SS-AS. The SS-LE supplementary service shall be offered in the area selected for the call.

**4.3.14 Access Priority (SS-AP)**

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

**4.3.15 Priority Call (SS-PC)**

SS-LE shall not have any interaction with SS-PC. The SS-PC indication shall be displayed or shall be used by the members of the group to choose their final communication.

**4.3.16 Call Waiting (SS-CW)**

Not applicable.

**4.3.17 Call Hold (SS-HOLD)**

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

**4.3.18 Call Completion to Busy Subscriber (SS CCBS)**

Not applicable.

**4.3.19 Late Entry (SS-LE)**

Not applicable.

**4.3.20 Transfer of Control (SS-TC)**

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

**4.3.21 Pre-emptive Priority Call (SS-PPC)**

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

**4.3.22 Include Call (SS-IC)**

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

**4.3.23 Advice of Charge (SS-AoC)**

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

**4.3.24 Barring of Outgoing Calls (SS-BOC)**

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

**4.3.25 Barring of Incoming Calls (SS-BIC)**

Not applicable. SS-BIC shall not apply to a user called in a group call. If barring is needed it shall be obtained by removing that user from the group.

**4.3.26 Discreet Listening (SS-DL)**

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

**4.3.27 Ambience Listening (SS-AL)**

Not applicable.

**4.3.28 Dynamic Group Number Assignment (SS-DGNA)**

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

**4.3.29 Call Completion on No Reply (SS-CCNR)**

Not applicable.

**4.3.30 Call Retention (SS-CR)**

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

**4.4 Inter-working considerations**

SS-LE shall be supported over ISI.

4.5 Overall SDL

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

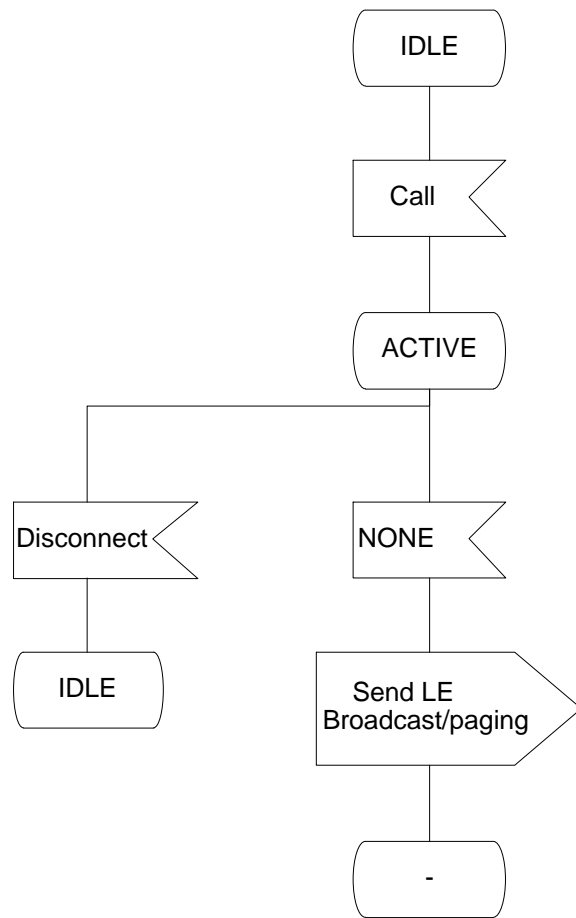


Figure 1: SS-LE supplementary service SDL

## History

Document history			
November 1994	Public Enquiry	PE 73:	1994-11-07 to 1995-03-03
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