Final draft ETSI EN 300 392-10-21 V1.2.0 (2003-04)

European Standard (Telecommunications series)

Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 10: Supplementary services stage 1;
Sub-part 21: Ambience Listening (AL)

ETSI

Reference

REN/TETRA-03001-10-21

Keywords

ambience, data, radio, speech, stage 1,
supplementary service, TETRA

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

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or
perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF).
In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive
within ETSI Secretariat.

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
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, send your comment to:
editor@etsi.org

Copyright Notification

ETSI

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document 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 (http://webapp.etsi.org/IPR/home.asp).

All published ETSI deliverables shall include information which directs the reader to the above source of information.

Foreword

This European Standard (Telecommunications series) has been produced by ETSI Project Terrestrial Trunked Radio (TETRA), and is now submitted for the ETSI standards One-step Approval Procedure.

The present document is part 10, sub-part 21 of a multi-part deliverable covering Voice plus Data (V+D), as identified below:

EN 300 392-1:   "General network design";

EN 300 392-2:   "Air Interface (AI)";

EN 300 392-3:   "Interworking at the Inter-System Interface (ISI)";

ETS 300 392-4:   "Gateways basic operation";

EN 300 392-5:   "Peripheral Equipment Interface (PEI)";

EN 300 392-7:   "Security";

EN 300 392-9:   "General requirements for supplementary services";

EN 300 392-10: "Supplementary services stage 1";

   ETS 300 392-10-1:   "Call identification";

   ETS 300 392-10-2:   "Call report";

   ETS 300 392-10-3:   "Talking Party Identification (TPI)";

   EN 300 392-10-4:   "Call Forwarding (CF)";

   ETS 300 392-10-5:   "List Search Call (LSC)";

   ETS 300 392-10-6:   "Call Authorized by Dispatcher (CAD)";

   ETS 300 392-10-7:   "Short number addressing";

   ETS 300 392-10-8:   "Area selection";

   ETS 300 392-10-9:   "Access priority";

   EN 300 392-10-10:   "Priority Call (PC)";

   ETS 300 392-10-11:   "Call Waiting (CW)";

   ETS 300 392-10-12:   "Call Hold (CH)";

   ETS 300 392-10-13:   "Call completion to busy subscriber";

   EN 300 392-10-14:   "Late Entry (LE)";

   ETS 300 392-10-15   "Transfer of control";

ETS 300 392-10-16:   "Pre-emptive priority call";

EN 300 392-10-17:   "Include Call (IC)";

EN 300 392-10-18:   "Barring of Outgoing Calls (BOC)";

EN 300 392-10-19:   "Barring of Incoming Calls (BIC)";

ETS 300 392-10-20: "Discreet Listening (DL)";

EN 300 392-10-21:   "Ambience Listening (AL)";

EN 300 392-10-22:   "Dynamic Group Number Assignment (DGNA)";

ETS 300 392-10-23: "Call completion on no reply";

ETS 300 392-10-24: "Call Retention (CRT)";

EN 300 392-11: "Supplementary services stage 2";

EN 300 392-12: "Supplementary services stage 3";

ETS 300 392-13: "SDL model of the Air Interface (AI)";

ETS 300 392-14: "Protocol Implementation Conformance Statement (PICS) proforma specification";

TS 100 392-15:   "TETRA frequency bands, duplex spacings and channel numbering";

TS 100 392-16:   "Network Performance Metrics";

TS 100 392-17:   "TETRA V+D and DMO Release 1.1 specifications".

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

1 Scope

The present document defines the stage 1 specifications of the Ambience Listening (AL) supplementary service 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.

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 document specifies the interactions with other TETRA supplementary services and inter-working considerations.

Charging principles are outside the scope of the present document.

The AL supplementary service enables the served user to place an affected user's TETRA Mobile Station (MS) into a special type of individual voice call teleservice whereby the called MS shall transmit without any action from, or indication to, the affected user.

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.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

[1] 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: ambience listened-to user

Mobile Station (MS): physical grouping that contains all of the mobile equipment that is used to obtain TETRA services

NOTE: By definition, a mobile station contains at least one Mobile Radio Stack (MRS).

served user: user who invokes the supplementary service

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

NOTE: The SwMI enables user terminals to communicate with each other via the SwMI and multiple SwMIs may be connected together using Inter-System Interface (ISI).

user: any subscriber using or affected by SS-AL services

NOTE: The present document uses word "user" in the same meaning than word "subscriber" is often used.

3.2   Abbreviations

3.2.1   General abbreviations

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

MS   Mobile Station
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 the present document, the following supplementary service abbreviations apply:

AL   Ambience Listening
AP   Access Priority
AS   Area Selection
BIC   Barring of Incoming Calls
BOC   Barring of Outgoing Calls
CAD   Call Authorized by Dispatcher
CCBS   Call Completion to Busy Subscriber
CCNR   Call Completion on No Reply
CFB   Call Forwarding on Busy
CFNRy   Call Forwarding on No Reply
CFNRc   Call Forwarding on Not Reachable
CFU   Call Forwarding Unconditional
CLIP   Calling Line Identification Presentation
CLIR   Calling/Connected Line Identification Restriction
COLP   COnnected Line identification Presentation
CR   Call Report
CRT   Call ReTention
CW   Call Waiting
DGNA   Dynamic Group Number Assignment
DL   Discreet Listening
HOLD   Call HOLD
IC   Include Call
LE   Late Entry
LSC   List Search Call
PC   Priority Call
PPC   Pre-emptive Priority Call
SNA   Short Number Addressing
TPI   Talking Party Identification

4   SS-AL stage 1 specification

4.1   Description

4.1.1   General description

Ambience listening supplementary service (SS-AL) enables the served user to place affected user's TETRA Mobile Station (MS) into a special type of individual voice call teleservice so that the affected user's MS transmits without any action from, or indication to, the affected user. As an option SS-AL may be invoked during group call on a group call participating user. The SS-AL call may include a second listening party. The second listening party may be either individual user or a group.

The present document shall not preclude that during ambience listening the called mobile may make and receive calls as normal.

The ambience listening call shall not prevent affected user to send and receive short data messages.

If the user attempts to power off the terminal, which is in an SS-AL call, the terminal may continue the SS-AL call whilst appearing to shut down.

NOTE: A user can ask for SS-AL to be invoked on himself/herself by sending a pre-defined short data status to another user.

4.1.2   Qualifications on applicability to telecommunications services

Ambience listening shall be a special TETRA speech service.

4.2   Procedures

4.2.1   Provision/Withdrawal

This service shall be provided by prior arrangement upon subscription with the service provider. The service provider may provide this service on a selective basis to individual TETRA users whilst barring it from others. The subscription may which affected users the served user is authorized ambience listened to.

Instead of subscription or in addition to it a password may be required at invocation of the SS-AL service.

Arrangements of provision, subscription and password procedures are outside the scope of the present document.

The service provider may withdraw this service at any time.

4.2.2   Normal procedures

4.2.2.1   Management of SS-AL service

4.2.2.1.1   Activation/Deactivation

The service provider shall permanently activate this supplementary service as a result of the provision. The service provider deactivates the SS-AL service as a result of withdrawal.

4.2.2.1.2   Interrogation

The TETRA network response to an interrogation request on an affected user or users shall provide the following information to the authorized user:

- SS-AL invoked for TETRA identity and the listening party identity;

- SS-AL not invoked for TETRA identity.

Support of interrogation is optional.

4.2.2.2   Invocation and operation

4.2.2.2.1   Invocation and operation

The served user shall invoke Ambience Listening supplementary service in conjunction of an individual call set up or optionally using SS-AL specific call maintenance procedures to invoke transmission of a speech item, when the affected user is participating to a group call.

To invoke SS-AL call, the served user shall apply basic call set-up for individual call to the affected user and indicate a request for SS-AL invocation.

When the served user so invokes the SS-AL call, the TETRA network shall return notification of acceptance of the request. When the request is accepted the network shall continue the call set up attempt with the affect user's MS.

The called affected user's MS shall acknowledge the call set up request and the ambience listening call shall be established.

Optionally SS-AL service may support invocation of SS-AL speech item during a group call and affected user's MS may accept SS-AL speech item while being in a call without disconnecting the existing call.

Once the ambience listening call is established or a speech item is invoked, the affected user's MS shall enter a transmit mode, opening the microphone. This state shall remain until the served user clears the call or speech item or another call to or from the affected user's MS intervenes. The affected user's MS shall not show any indication to the user that it has entered the ambient listening mode or during the ambience listening call.

The served user may optionally invoke inclusion of a second listening party. If the inclusion is successful the TETRA network shall return indication of it.

If the affected user is already being ambience listened-to, then the new served user shall receive a busy indication, or, depending on the implementation option, may be joined the SS-AL call as a second listening party.

4.2.2.2.2   Completion

The supplementary service call shall be completed either by the ambience listening call being cleared down by the served user, or by the affected user making or receiving a call.

It is possible, depending on the implementation option offered, that the new call to or from the affected user does not clear down the ambience listening service.

The optional SS-AL speech item supplementary service during a group call shall be completed by a request from the served user or when the group call is cleared down. The SS-AL speech item may be ended also when the affected user requests a permission to talk.

4.2.3   Exceptional procedures

4.2.3.1   Management of SS-AL

4.2.3.1.1   Activation/deactivation

As the service is permanently activated upon provision there is neither exceptional procedure for activation nor deactivation.

4.2.3.1.2   Interrogation

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

-     user not authorized;

-     unknown interrogated TETRA identity;

-     parameters not valid;

-     insufficient information;

-     interrogation request rejected for undefined reason; or

-     affected user does not support SS-AL.

4.2.3.2   Invocation and operation

If the TETRA network cannot invoke the requested service, the cause shall be returned to the served user, such as:

-     service not supported;

-     user not authorized to invoke SS-AL toward the affected user;

-     affected user busy in a non-ambience listening call;

-     second listening party not included;

-     unknown TETRA identity;

-     parameters not valid;

-     insufficient information; or

-     rejected for undefined reason.

In addition or instead of the above reasons the served user may receive any basic call disconnection reason such as "called user not reachable".

4.3   Interactions with other supplementary services

4.3.1   Access Priority (AP)

Ambience listening services shall not have any interaction with SS-AP.

4.3.2   Ambience Listening (AL)

If the user is already being ambience listened to by another user, then the new request for SS-AL may be rejected and a busy indication is returned to the second served user.

An implementation may allow any number of authorized users to invoke SS-AL to the same affected user as second listening parties, refer to clause 4.2.2.2.1.

4.3.3   Area Selection (AS)

Ambience listening call shall not have any interaction with SS-AS. The ambience listening call shall be set-up as defined by the SS-AS restrictions.

4.3.4   Barring of Incoming Calls (BIC)

If the affected user's MS has this supplementary service invoked then ambient listening call shall override it.

4.3.5   Barring of Outgoing Calls (BOC)

Ambience listening shall not have any interaction with SS-BOC.

The served user shall be unable to invoke the ambient listening call if the SS-BOC supplementary service is activated at the served user.

4.3.6   Call Authorized by Dispatcher (CAD)

Ambience listening shall not have any interaction with SS-CAD.

If the served user is a restricted user of the SS-CAD supplementary service then it shall be necessary to seek approval for the ambience listening call before the ambient listening supplementary service will be invoked.

4.3.7   Call Completion to Busy Subscriber (CCBS)

Ambience listening shall not have any interaction with SS-CCBS.

4.3.8   Call Completion on No Reply (CCNR)

Interaction is not applicable as the ambience listening call is set up without any affected user action and so the call set-up should never reach condition for SS-CCNR invocation and the ambience listening call shall connect directly onto the affected user.

4.3.9   Call Forwarding on Busy (CFB)

If the affected user has activated Call Forwarding on Busy supplementary service and he is encaged in a call, the ambient listening call shall not be forwarded and the served user shall receive an indication that the called affected user is busy.

If during ambience listening call there is another (non-ambience listening) call attempt to the ambience listened user, then the network may either disconnect the ambience listening call and proceed with the new call or invoke SS-CFB.

4.3.10   Call Forwarding on No Reply (CFNRy)

Interaction is not applicable as the ambience listening call is set up without any affected user action and so the call set-up should never reach condition for SS-CFNRy invocation and the ambience listening call shall connect directly onto the affected user.

4.3.11   Call Forwarding on Not Reachable (CFNRc)

If the affected user has activated Call Forwarding on Not Reachable supplementary service, the ambient listening call shall not be forwarded and the served user shall receive an indication that the called affected user is not reachable.

4.3.12   Call Forwarding Unconditional (CFU)

The ambient listening call shall override SS-CFU and shall not be diverted to another MS but shall connect directly onto the affected user (original called user).

4.3.13   Call Hold (HOLD)

Ambience listening shall modify SS-HOLD, so that when the served user puts the ambient listening call on hold no indication shall be given to the SS-AL affected user that the call has been placed on hold.

> NOTE: The present document assumes that the affected user's MS prevents the SS-HOLD indication to be presented as it does for any other indication during an ambience listening call. Whether also the TETRA network suppresses the sending of the SS-HOLD information to the affected user is outside the scope of the present document.

4.3.14   Calling Line Identification Presentation (CLIP)

If the called MS user has activated SS-CLIP, the called MS shall not display the identity of the served user (ambient listener).

> NOTE: The present document assumes that the affected user's MS prevents the SS-CLIP indication to be presented as it does for any other indication during an ambience listening call. Whether also the TETRA network suppresses the sending of the SS-CLIP information to the affected user is outside the scope of the present document.

4.3.15   Calling/Connected Line Identification Restriction (CLIR)

In the case where the served user is listening to the affected user and the latter has activated SS-CLIR, then the ambient listening supplementary service may take precedence and the called subscribers line may be presented to the served user.

> NOTE: The restriction as such has no meaning as the ambience listening call is never connected to another user than the original called (affected) user.

4.3.16   Call Report (CR)

The ambient listening supplementary service may ensure that no CR is left at the called user's terminal.

> NOTE: The present document assumes that the affected user's MS prevents the SS-CR indication to be presented as it does for any other indication during an ambience listening call. Whether also the TETRA network suppresses the sending of the SS-CLIP information to the affected user is outside the scope of the present document.

4.3.17   Call ReTention (CRT)

Ambience listening shall not have any interaction with SS-CRT.

4.3.18   Call Waiting (CW)

Ambience listening shall not have any interaction with SS-CW.

During the time that ambient listening is invoked the served user should be informed of any calls waiting.

As the affected user is unaware of the ambience listening call he has no reason to invoke the SS-CW, but either accept or reject the incoming call.

4.3.19   COnnected Line identification Presentation (COLP)

Ambience listening shall not have any interaction with SS-COLP.

If the served user has activated SS-COLP, they shall receive the identity of the user that they are ambient listening to.

4.3.20   Discreet Listening (DL)

Ambience listening shall not have any interaction with SS-DL as SS-DL and SS-AL services are exclusive.

4.3.21   Dynamic Group Number Assignment (DGNA)

There is no possible interaction between SS-DGNA and SS-AL.

4.3.22   Include Call (IC)

Include Call supplementary service cannot be invoked during Ambience Listening call and the SS-IC attempt shall be rejected indicating "un-allowed supplementary service interaction". Refer to clause 4.2.2.2.1 on optional inclusion of second listening party.

4.3.23   Late Entry (LE)

Ambience listening shall not have any interaction with SS-LE.

4.3.24   List Search Call (LSC)

A list search call list is not an acceptable target for ambience listening and the SS-AL call attempt shall be rejected indicating "un-allowed supplementary service interaction".

4.3.25   Pre-emptive Priority Call (PPC)

Ambience listening shall not have any interaction with SS-PPC.

4.3.26   Priority Call (PC)

Ambience listening shall not have any interaction with SS-PC.

4.3.27   Short Number Addressing (SNA)

Ambience listening shall not have any interaction with SS-SNA.

4.3.28   Talking Party Identification (TPI)

Ambience listening shall not have any interaction with SS-TPI.

Served user has activated the service: After served user has been connected, it shall receive an indication of the identity of the user that he is ambient listening to.

4.4   Interactions with other TETRA services

The affected user shall be capable to receive and send status and short data messages during ambience listening. SwMI may restrict sending of some of the messages to the affected user MS. The restriction definition and mechanism are outside the scope of the present document.

> NOTE: The quality of service of status and short data messages may be heavily affected due to the ambience listening.

The interaction with packet data service is dependent of the affected user MS capabilities and the SS-AS shall set no additional requirements.

4.5   Inter-working considerations

Ambience listening shall be available across the intersystem interface.

Ambience listening shall not be available from non-TETRA terminals.

4.6   Overall SDL

Figure 1 contains the dynamic description of SS-AL using the specification and description Language (SDL) defined in ITU-T Recommendation Z.100 [1]. The SDL process represents typical behaviour of the network in providing SS-AL.
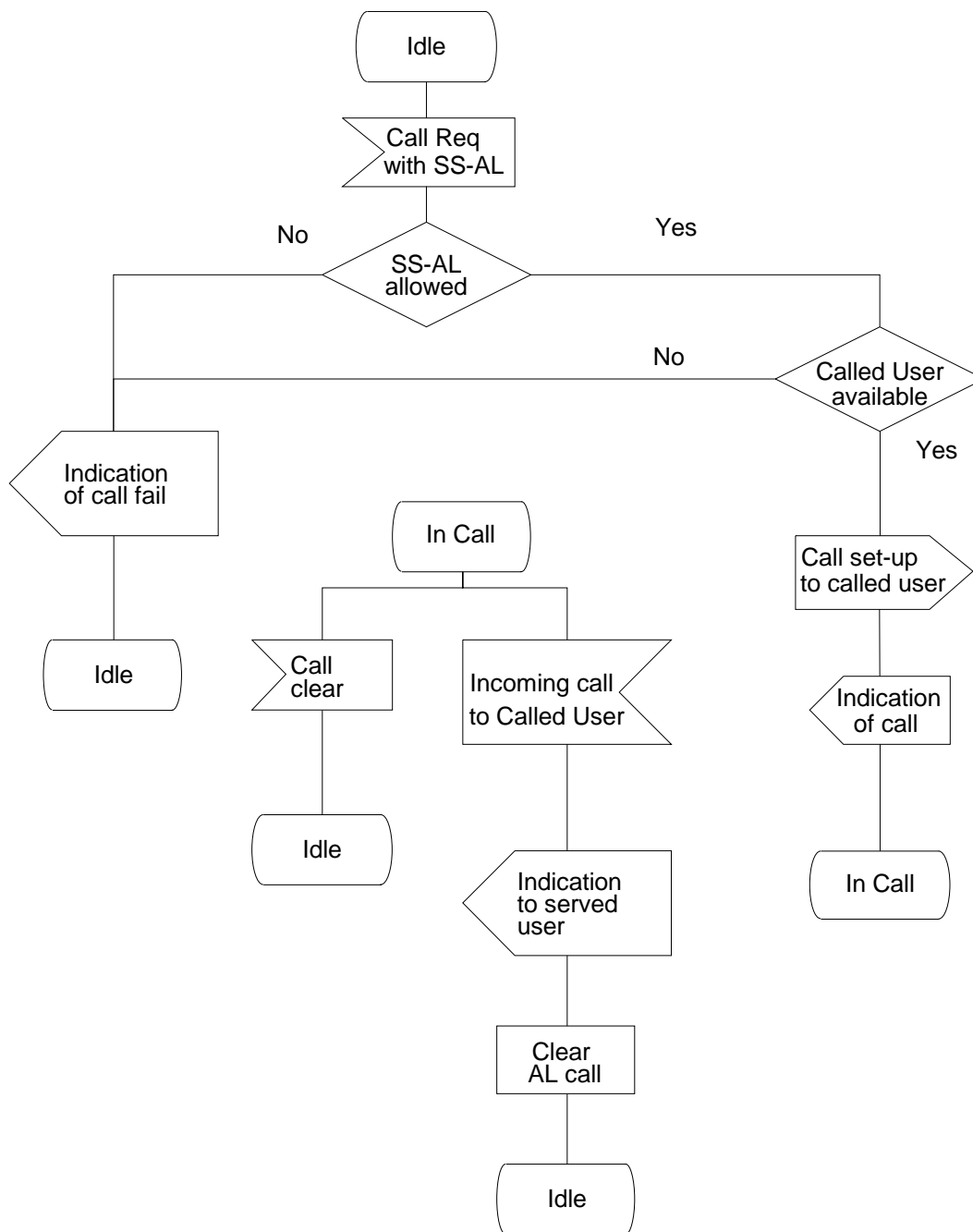
Figure 1: SS-AL, overall SDL

Annex A (informative):
Bibliography

ITU-T Recommendation I.130: "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".

History

Document history		
Edition 1	April 1996	Publication as ETS 300 392-10-21
V1.2.0	April 2003	One-step Approval Procedure OAP 20030829: 2003-04-30 to 2003-08-29