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**Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 12: Supplementary services stage 3;
Sub-part 21: Ambience Listening (AL)**

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Foreword

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

The present document is part 12, 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";

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

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

EN 300 392-12-1: "Call Identification (CI)";

ETS 300 392-12-2: "Call Report (CR)";

EN 300 392-12-3: "Talking Party Identification (TPI)";

EN 300 392-12-4: "Call Forwarding (CF)";

ETS 300 392-12-5: "List Search Call (LSC)";

EN 300 392-12-6: "Call Authorized by Dispatcher (CAD)";

ETS 300 392-12-7: "Short Number Addressing (SNA)";

EN 300 392-12-8: "Area Selection (AS)";

ETS 300 392-12-9: "Access Priority (AP)";

EN 300 392-12-10: "Priority Call (PC)";

ETS 300 392-12-11: "Call Waiting (CW)";

EN 300 392-12-12: "Call Hold (HOLD)";

ETS 300 392-12-13: "Call Completion to Busy Subscriber (CCBS)";
 EN 300 392-12-14: "Late Entry (LE)";
 EN 300 392-12-16: "Pre-emptive Priority Call (PPC)";
 EN 300 392-12-17: "Include Call (IC)";
 EN 300 392-12-18: "Barring of Outgoing Calls (BOC)";
 EN 300 392-12-19: "Barring of Incoming Calls (BIC)";
 ETS 300 392-12-20: "Discreet Listening (DL)";
EN 300 392-12-21: "Ambience Listening (AL)";
 EN 300 392-12-22: "Dynamic Group Number Assignment (DGNA)";
 ETS 300 392-12-23: "Call Completion on No Reply (CCNR)";
 ETS 300 392-12-24: "Call Retention (CRT)";

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 spacing and channel numbering";

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

TR 100 392-17: "TETRA V+D and DMO Release 1.1 specifications";

TS 100 392-18: "Air interface optimized applications";

NOTE: Part 13 (SDL) and part 14 (PICS) of this multipart deliverable are of status "historical" and will not be updated according to this version of the standard.

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Date of withdrawal of any conflicting National Standard (dow):	31 March 2008

1 Scope

The present document defines the stage 3 specification of the Supplementary Service Ambience Listening (SS-AL) for the Terrestrial Trunked Radio (TETRA). Stage 3 defines the signalling system protocols and switching functions needed to implement the service described in stage 1 and stage 2.

Charging principles and Man-Machine Interface (MMI) are outside the scope of the present document.

The SS-AL enables the served user to place a TETRA Mobile Station (MS) into a special type of voice call whereby the called MS transmits without any action from, or indication to, the affected user. The SS-AL call can include a second listening party. The affected user can ask other user to set an SS-AL call on him.

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.

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- [1] ETSI EN 300 392-11-21: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2; Sub-part 21: Ambience Listening (AL)".
 - [2] ETSI EN 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".
 - [3] ETSI EN 300 392-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design".
 - [4] ETSI EN 300 392-9: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 9: General requirements for supplementary services".
 - [5] ETSI EN 300 392-3-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 2: Additional Network Feature Individual Call (ANF-ISIIC)".
 - [6] ETSI EN 300 392-3-3: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 3: Additional Network Feature Group Call (ANF-ISIGC)".
 - [7] ETSI EN 300 392-10-21: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 21: Ambience Listening (AL)".

3 Definitions and abbreviations

3.1 Definitions

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

affected user: user to whom the served user is listening

Ambience Listening (AL call): call in which ambience listening functionality is requested

NOTE: During an AL call, the affected user's MS transmits without any action from, or indication to, the affected user.

second listening party: TETRA individual or group which additionally listens into the AL call

served user: user who invokes this supplementary service and listens to the affected user

3.2 Abbreviations

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

AL	Ambience Listening
CC	Call Control
CFB	Call Forwarding on Busy
CLIR	Calling Line Identification Restriction
CMCE	Circuit Mode Control Entity
FE	Functional Entity
GSSI	Group Short Subscriber Identity
ISI	Inter-System Interface
ISSI	Individual Short Subscriber Identity
ITSI	Individual TETRA Subscriber Identity
LS	Line Station
MMI	Man-Machine Interface
MS	Mobile Station
PDU	Protocol Data Unit
SAP	Service Access Point
SDL	(Functional) Specification and Description Language
SNA	Short Number Address
SS	Supplementary Service

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

SSI	Short Subscriber Identity
SwMI	Switching and Management Infrastructure
TNSS-SAP	TETRA Network layer Supplementary Service - Service Access Point
TSI	TETRA Subscriber Identity

4 SS-AL service description

4.1 General

The SS-AL enables the served user to place a TETRA Mobile Station (MS) into a special type of voice call teleservice whereby the called MS transmits without any action from, or indication to, the affected user. The affected user shall be an individual user. The SS-AL call may include a second listening party. The second listening party may be either individual user or a group.

Clauses 4.2 and 4.3 describe SS-AL specific services offered by the Circuit Mode Control Entity (CMCE) at the Supplementary Services service access point (TNSS-SAP) of the TETRA voice plus data layer 3 service boundary. The SS-AL service access point is used in conformance testing as a normative boundary in TETRA Mobile Stations (MSs).

NOTE 1: As the present document only deals with the SS-AL all the service primitives has been shown without a TNSS-AL-prefix e.g. the TNSS-AL-INVOKE request is shorten into an INVOKE request.

The services offered to users of SS-AL are defined as service primitives containing service parameters. The service primitives are defined in clauses 4.2 and 4.3 and the service parameters are defined in clause 4.4.

In addition to the defined service primitives a SwMI may respond by a service not supported or a process not supported primitives as appropriate, refer EN 300 392-9 [4].

NOTE 2: As the present document does not describe a man-machine interface nor user applications the service primitives are used to define information exchange to and from the standardized part of the MS/LS. Those primitives may not be accessible directly nor indirectly.

Examples of information flows are presented in EN 300 392-11-21 [1].

4.2 SS-AL services offered over the TNSS-SAP

4.2.1 SS-AL service primitives to served user

The SS-AL service primitives at the served user MS/LS (FE1) TNSS-SAP are:

- a) INTERROGATE request;
- b) INTERROGATE indication;
- c) INVOKE1 request;
- d) INVOKE1 indication;
- e) INVOKE2 request;
- f) INVOKE2 indication;
- g) INVOKE3 request;
- h) INVOKE3 indication; and
- i) STOP LISTENING request.

4.2.2 SS-AL service primitives to affected user

The SS-AL service primitives at the affected user MS/LS (FE5) TNSS-SAP are:

- a) INVOKE indication; and
- b) INVOKE ACK request.

4.2.3 SS-AL service primitive to second listening party

The SS-AL service primitive at the second listening party MS/LS (FE6) TNSS-SAP is:

- a) INFORMATION indication.

NOTE: In the present document primitives request and indication are used instead of request and confirmation as there may not be a one to one correspondence between those primitives, e.g. there can be multiple responses as indications due to a single request.

The information contained in the following argument description tables correspond to the following key:

- C/O/M: conditional/optional/mandatory;
- Remark: comment.

4.3 Service primitive descriptions

4.3.1 INFORMATION indication

The INFORMATION indication shall be presented to the application from FE6 to indicate to the second listening party that the incoming call is an ambience listening call. The primitive shall contain the SS-AL information parameters listed in table 1.

Table 1: INFORMATION indication primitive contents

Parameter	Indication	Remark
Affected user TETRA identity	M	
Listening party identity	O	See note
NOTE: This parameter is not available, when the Notification indicator is used alone.		

4.3.2 INTERROGATE request

The INTERROGATE request primitive shall be offered from application to FE1 over TNSS-SAP when a served user interrogates whether an affected user is ambience listened to. The primitive shall contain the SS-AL information parameters listed in table 2.

Interrogated TETRA identity parameter is a repeatable parameter that shall define one individual number, a list of individual numbers or a range of individual numbers. There shall be at least one defined TETRA identity in a INTERROGATE request. SNA, if used, should refer to a SNA defined for served user.

The implementation of INTERROGATE request is optional.

Table 2: INTERROGATE request primitive contents

Parameter	Request	Remark
Interrogated TETRA identity	M	Repeatable

4.3.3 INTERROGATE indication

The INTERROGATE indication primitive shall be offered from FE1 to application over TNSS-SAP as a response to a previously sent interrogation request to the served user. The primitive shall contain the SS-AL information parameters listed in table 3.

Interrogated individual TETRA identity parameter is a repeatable parameter that shall define one individual number, a list of individual numbers or a range of individual numbers. There shall be at least one defined group TETRA identity in a INTERROGATE request. SNA, if used, should refer to a SNA defined for served user.

Implementation of INTERROGATE indication is mandatory, if INTERROGATE request is supported.

Table 3: INTERROGATE indication primitive contents

Parameter	Indication	Remark
Interrogated TETRA identity	M	Repeatable
Interrogation result	M	Repeatable