



SLOVENSKI STANDARD
SIST EHG 300 392-12-14.% - -
01-1 `]1% - -

Prizemni snopovni radio (TETRA) - Govor in podatki (V+D) - 12. del: Dopolnilne storitve stopnje 3 - 12.-14. del: Poznejši vstop (LE)

Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 14: Late Entry (LE)

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|-----------|---------------------------------|-----------------------------------|
| 33.070.10 | Prizemni snopovni radio (TETRA) | Terrestrial Trunked Radio (TETRA) |
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Part 12-14: Late Entry (LE)**

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Foreword

This draft European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Public Enquiry phase of the ETSI standards approval procedure.

This ETS is a multi-part standard as follows:

- 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 (SS) Stage 1".
- Part 11: "Supplementary Services (SS) Stage 2".
- Part 12: "Supplementary Services (SS) Stage 3".**
- Part 13: "SDL Model of the Air Interface", (DE/RES-06001-13).
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- Part 14: "PICS Proforma", (DE/RES-06001-14).
<https://standards.iteh.ai/catalog/standards/sist/dd9f12f8-6eca-430a-a960-32-12-14-v1-1-1-2003>
- Part 15: "Inter-working - Extended Operations", (DE/RES-06001-15).

| Proposed transposition dates | |
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| Date of latest announcement of this ETS (doa): | 3 months after ETSI publication |
| Date of latest publication of new National Standard or endorsement of this ETS (dop/e): | 6 months after doa |
| Date of withdrawal of any conflicting National Standard (dow): | 6 months after doa |

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1 Scope

This European Telecommunication Standard (ETS) defines the stage 3 specifications of the Supplementary Service Late Entry (SS-LE) for the Trans-European Trunked Radio (TETRA).

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

Man-Machine Interface (MMI) and charging principles are outside the scope of this ETS.

Supplementary Service stage 3 specification is preceded by the stage 1 and the stage 2 specifications of the service. Stage 1 describes the functional capabilities from the user's point of view. Stage 2 defines the functional behaviour in terms of functional entities and information flows. Stage 3 gives a precise description of the Supplementary Service from the implementational point of view. It defines the protocols for the service and the encoding rules for the information flows. It defines the processes for the functional entities and their behaviour. The described protocols and behaviour apply for the Switching and Management Infrastructure (SwMI), for the Mobile Station (MS) and for the Line Station (LS) and can be applied over the Inter System Interface (ISI) between TETRA systems.

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 European Telecommunications Standard 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 ISSN and network capabilities of an ISDN".
- [2] ETS 300 392-2: "Radio Equipment and Systems (RES), Trans-European Trunked Radio (TETRA), Voice plus Data (V+D), Part 2: Air Interface (AI)".
- [3] 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 and interrogate the SS-LE parameters. The definition procedure and principles for authorized user are outside the scope of SS-LE.

forced LE: The user should join the ongoing multipoint call as soon as he receives a late entry indication. If the user is already engaged in another communication, the user has to join the highest priority call.

LE acknowledgement: Indication sent in LE messages by a SwMI to inform a member who would like to join the call that he has to inform the SwMI of his entering the call.

LE broadcast: Indication sent by a 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).

LE paging: Indication sent by a 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 wish to participate the call (a channel is not yet allocated in this cell).

system 1: A TETRA system in which SS-LE can be defined and invoked. System 1 is the TETRA system which has same Mobile Network Identity (MNI) as the TETRA group identity to which SS-LE is defined.

system 2: A TETRA system to which SS-LE can be extended and invoked. System 2 is a TETRA system which has a different MNI as the TETRA group identity to which SS-LE is defined.

user A: Calling party in a call.

user B: In a group call a party that receives the SS-LE indications about an ongoing call.

3.2 Abbreviations

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

| | |
|------|--|
| CC | Call Control |
| CCA | Call Control (functional entity Agent) |
| FE | Functional Entity |
| GTSI | Group TETRA Subscriber Identity |
| ISI | Inter-System Interface |
| ITSI | Individual TETRA Subscriber Identity |
| LE | Late Entry |
| LS | Line Station |
| MS | Mobile Station |
| SS | Supplementary Service |

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

SwMI Switching and Management Infrastructure

4 Supplementary Service Late Entry (SS-LE) Stage 3 specification

4.1 Functional model

4.1.1 Functional model description

The functional model shall comprise the following Functional Entities (FEs):

- FE1 user B functional entity;
- FE2 SS-LE functional entity;
- FE3 authorized user's functional entity.

NOTE: A member of a group is authorized to interrogate the SS-LE for the group. For such interrogation, the INTERROGATE/INTERROGATE-ACK information flow is applicable and is used in the MS/LS as defined for FE3.

- FE4 SS-LE functional entity in visited system;
- FE5 user A's (Calling party's) functional entity;
- CC Call Control;
- CCA Call Control Agent.

The following relationships shall exist between these FEs:

- ra between FE1 and FE2;
- rb between FE2s' in different systems;
- rc between FE2 and FE3;
- rd between FE2 and FE5;
- re between FE1 and FE4;
- rf between FE3 and FE4.

Figure 1 shows these FEs and relationships for the operational part and figure 2 for the management part.

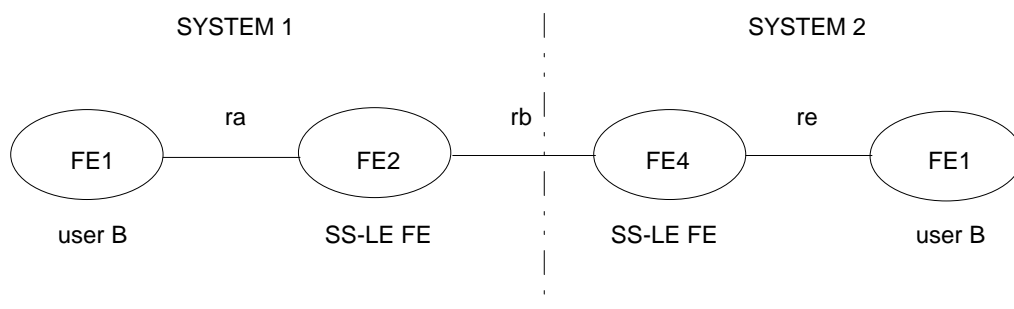


Figure 1: Functional model for the operational part of SS-LE

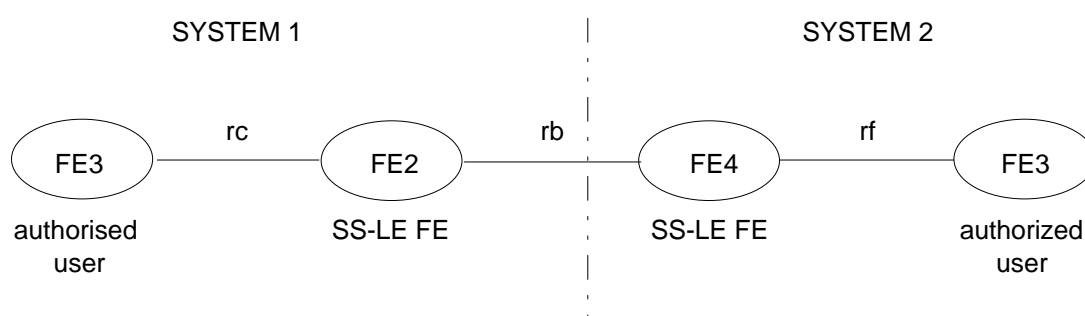


Figure 2: Functional model for the management part of SS-LE

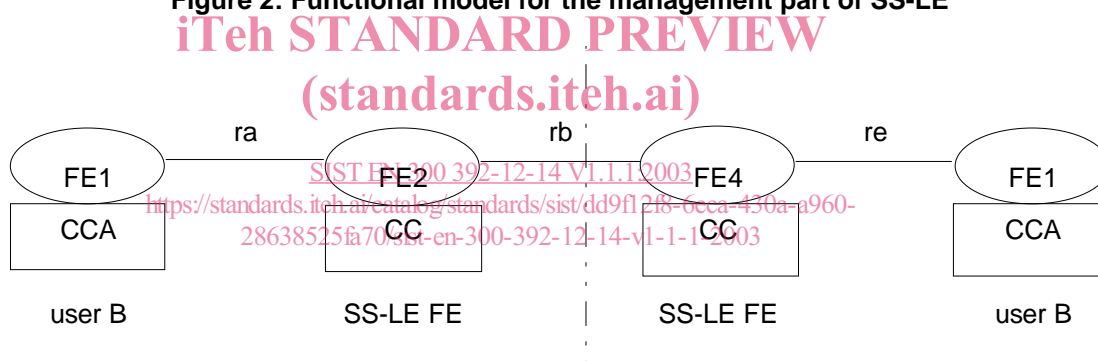


Figure 3: The relationships with a basic service.

4.2 SS-LE Service Description

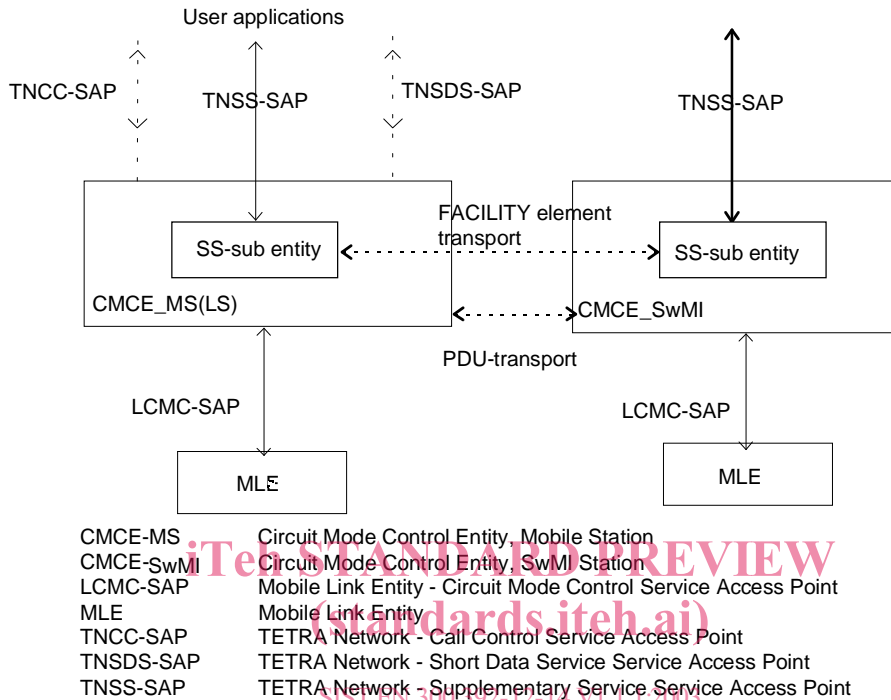
4.2.1 Mapping of FEs to Circuit Mode Control Entities (CMCE) sub-entities

Functional Entities (FEs, CCs and CCAs) correspond to sub-entities in CMCE described in ETS 300 392-2 [2] according to the following rules:

- FE1: supplementary service sub-entity in CMCE in user B's MS/LS;
- FE2: supplementary service sub-entity in CMCE in SwMI in system 1;
- FE3: supplementary service sub-entity in CMCE in authorized user's MS/LS;
- FE4: supplementary service sub-entity in CMCE in SwMI in system 2;
- FE5: supplementary service sub-entity in CMCE in user A's MS/LS;
- CC: CC sub-entity in CMCE in SwMI;
- CCA: CC sub-entity in CMCE in MS/LS.

4.3 Protocol structure and protocol stack

Figure 4 shows the general position of the layer 3 supplementary services sub-entity within the CMCE and the TNSS-SAP in both the MS/LS and in the SwMI protocol stack. The SS-LE specific definition, operation and interrogation information elements shall be conveyed in a SS FACILITY element within the SS sub-entity. The FACILITY element is then conveyed in a suitable CMCE PDU (see ETS 300 392-2 [2], subclause 14.7) between the MS/LS and the SwMI or over the ISI. This ETS is only normative for the protocol architecture and user application SAPs within the mobile station/Line station but gives an informative description of the protocol and the SAPs within the SwMI.



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Figure 4: System view

5 SS-LE service description

5.1 General

Clause 5 describes SS-LE specific services offered by the CMCE at the supplementary services SAP (TNSS-SAP) of the TETRA V+D layer 3 service boundary. The specific SS-LE services shall be carried as arguments within the following 3 general generic SS primitives:

- TNSS-SERVICE;
- TNSS-INFO;
- TNSS-ERROR.

For a detailed description of the generic SS primitives refer to ETS 300 392-2 [2], subclause 12.3. The flow of the generic SS primitives shall be as illustrated in figure 5.

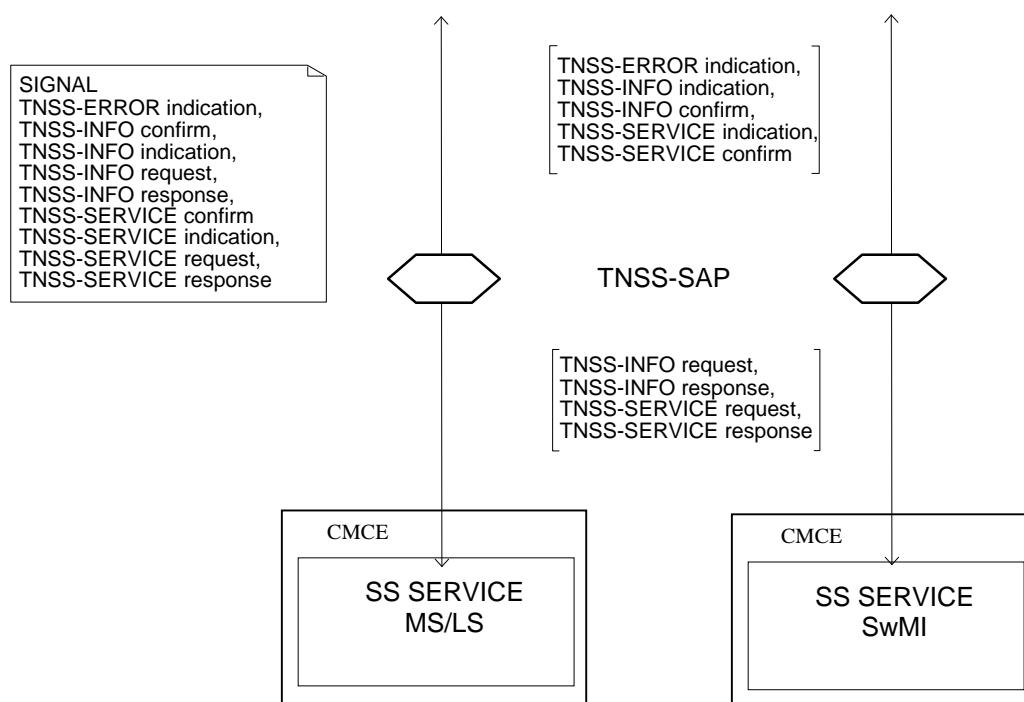


Figure 5: General supplementary services provided at the TNSS-SAP

The TNSS-SERVICE shall enable an invoking entity to request, and to be informed about, an operation to be performed by the performing entity.

The TNSS-INFO shall enable an entity to be informed of ongoing transactions.

The TNSS-ERROR shall enable a performing entity to return the negative reply of a unsuccessfully performed operation to the invoking entity.

5.1.1 SS-LE services offered over the TNSS-SAP

5.1.1.1 SS-LE primitives

The primitives shall as operation argument contain the following SS-LE sub-arguments.

- DEFINE request;
- DEFINE-ACK confirm;
- INFORM1 indication;
- INFORM2 indication;
- INFORM2-ACK response;
- INFORM3 indication;
- INFORM3-ACK response;
- INFORM4 indication;
- INTERROGATE request;
- INTERROGATE-ACK confirm.

5.1.1.2 DEFINE request

DEFINE request primitive shall be offered from application to FE3 over TNSS-SAP. The primitive shall contain the SS-LE information elements listed in table 1.

Defined group number type shall indicate the number of defined group TETRA identity elements, that shall follow the element. The element shall also indicate whether the following defined group TETRA identity elements shall be interpreted as one group number, a list of 2-10 group numbers or a range of group numbers. In case of range first and last element of the range shall be given.