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**Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 10: Supplementary services stage 1;
Sub-part 16: Pre-emptive Priority Call (PPC)**

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Foreword

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

The present document is part 10, sub-part 16 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";**
 - Sub-part 1: "Call Identification (CI)";
 - Sub-part 2: "Call report";
 - Sub-part 3: "Talking Party Identification (TPI)";
 - Sub-part 4: "Call Forwarding (CF)";
 - Sub-part 5: "List Search Call (LSC)";
 - Sub-part 6: "Call Authorized by Dispatcher (CAD)";
 - Sub-part 7: "Short number addressing";
 - Sub-part 8: "Area Selection (AS)";
 - Sub-part 9: "Access priority";
 - Sub-part 10: "Priority Call (PC)";
 - Sub-part 11: "Call Waiting (CW)";
 - Sub-part 12: "Call Hold (HOLD)";
 - Sub-part 13: "Call completion to busy subscriber";
 - Sub-part 14: "Late Entry (LE)";

Sub-part 15: "Transfer of control";

Sub-part 16: "Pre-emptive Priority Call (PPC)";

Sub-part 17: "Include Call (IC)";

Sub-part 18: "Barring of Outgoing Calls (BOC)";

Sub-part 19: "Barring of Incoming Calls (BIC)";

Sub-part 20: "Discreet Listening (DL)";

Sub-part 21: "Ambience Listening (AL)";

Sub-part 22: "Dynamic Group Number Assignment (DGNA)";

Sub-part 23: "Call completion on no reply";

Sub-part 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 DMIO Release 1.1 specifications";

NOTE: Part 13 (SDL) and part 14 (PICS) of this multi-part 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):	30 June 2005

1 Scope

The present document defines the stage 1 specifications of the Supplementary Service Pre-emptive Priority Call (SS-PPC) for the Terrestrial Trunked Radio system (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 interworking considerations.

Charging principles are outside the scope of the present document.

The SS-PPC enables a user to have preferential access to SwMI resources including pre-emption of calls.

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 I.221: "Common specific characteristics of services".
https://standards.iteh.ai/catalog/standards/sist/5e9049ca-96c2-49f3-a659-1e94b15c211f/etsi-en-300-392-10-16-v1-2-1-2006 |
| [2] | ITU-T Recommendation Z.100: "Specification and Description Language (SDL)". |
| [3] | ETSI ETS 300 392-10-24: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 24: Call Retention (CRT)". |
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3 Definitions and abbreviations

3.1 Definitions

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

Access Priority Level (APL): value allocated to each mobile Individual TETRA Subscriber Identity (ITSI)/Group TETRA Subscriber Identity (GTSI)/Call type that is used at the initial call set-up attempt to determine priority access across the air interface to the control functional entities

busy: property of a user for whom a network determined user busy or user determined user busy condition applies

NOTE: See ITU-T Recommendation I.221 [1].

Call Retention Value (CRV): call retention priority is a network option which defines the relative level of protection of the established call against the probability of having the resources pre-empted

established call: call between User B and C upon which the pre-emption request is made

impending pre-emption warning indication: warning provided before a pre-emption of the call is established

Pre-emptive Priority Level (PPL): pre-agreed value allocated to each mobile ITSI/GTSSI/Call type that is used so that resources may be allocated to the SS-PPC

pre-emptive state: call connection condition between the time the pre-emptive call is established by the network and the ending of the pre-emptive call, e.g. by the served user clearing

Priority Level (PL): pre-agreed value allocated to each mobile ITSI/GTSSI/Call type that is used to determine priority access to network resources in the event of network congestion

resource: all radio and network infrastructure facilities used for an established call

NOTE: Typical resource that SwMI releases due to pre-emption is allocated timeslots for an existing call. Also other resources such as links between base stations and exchange or links between SwMIs may be released.

served user: user A making the SS-PPC to user B

SS-PPC call: call with a pre-emptive priority value

time to pre-emption: selected time period between provision of warning of impending intrusion indication and establishment of the connection

3.2 Abbreviations

3.2.1 General abbreviations

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

APL	Access Priority Level
CSA	Called Subscriber Answer
CRV	Call Retention Value
GTSSI	Group TETRA Subscriber Identity
I/F	Interface
ITSI	Individual TETRA Subscriber Identity
MS	Mobile Station
PPL	Pre-emptive Priority Level
PL	Priority Level
SDL	(Functional) Specification and Description Language
SDS	Short Data Service
SS	Supplementary Service

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

SwMI Switching and Management Infrastructure

3.2.2 Supplementary Service abbreviations

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

SS-AL	Ambience Listening
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-TPI	Talking Party Identification

4 Supplementary Service Pre-emptive Priority Call (SS-PPC) stage 1 specification

4.1 Description

4.1.1 General description

4.1.1.1 Resource pre-emption

SS-PPC call enables the users to have resources allocated, even if this means that other calls with lower priority are disconnected. SS-PPC normally means one of the highest Access Priority Levels (APL) at uplink access and one of the highest Priority Levels (PL) across SwMIs.

Normally the calling user defines the pre-emptive priority level for the call, but SwMI may modify that value or allocate that value. The reasons for modification or allocation are outside the scope of the present document.

If the required resources are unavailable (i.e. occupied by other users) for the SS-PPC call SwMI should release resources of the oldest calls with the lowest SwMI Call Retention Value (CRV) and give the released resources to the SS-PPC call. The Call ReTention Supplementary Service (SS-CRT), ETS 300 392-10-24 [3], may also be used to determine which sources to release.

NOTE 1: It is possible that some networks may prefer a different process for determining resource priority.

NOTE 2: The network operator may have to provide a correspondence between priority values and CRVs. This correspondence and the means to establish it are outside the scope of the present document.

In the case where there is no congestion across the air interface or the network resources and the called user is not engaged, the call shall be set up in the normal manner, but the call shall keep the call retention value of the pre-emptive priority call.

4.1.1.2 Called user pre-emption

In the event where the destination TETRA address is already engaged on an established call the pre-emptive priority call shall have the ability to interrupt and pre-empt the call at the destination address, unless the established call has a sufficiently high priority that the incoming pre-emptive priority call cannot pre-empt.

The user pre-emption has two steps:

- SwMI decision whether the call where the called user is engaged is terminated; and
- in the case SwMI does not terminate the existing call the called user application decides whether to accept the incoming call or continue with the existing call.