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**Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 12: Supplementary services stage 3;
Sub-part 10: Priority Call (PC)**

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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 12 sub-part 10 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)";
- ETS 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 spacings and channel numbering";
- TS 100 392-16: "Network Performance Metrics";
- TS 100 392-17: "TETRA V+D and DMO Release 1.1 specifications".

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1 Scope

The present document defines the stage 3 specifications of the Supplementary Service Priority Call (SS-PC) for the Terrestrial Trunked Radio (TETRA).

The SS-PC enables a user to have preferential access to the network resources in the TETRA system in times of congestion. The SS-PC applies for the basic services: circuit mode calls (speech or data). The SS-PC specifies the definition, activation, deactivation and interrogation for the usage of low and high call priorities in the TETRA system. The operations are defined for the Switching and Management Infrastructure (SwMI), for the Mobile Station (MS) and for the Line Station (LS). SS-PC can be defined to subscribers of one TETRA system, but the subscribers can be located in several TETRA systems and the information flows can be delivered over the Inter System Interface (ISI). SS-PC can also be invoked for basic services within one TETRA system or for basic services that extend over ISI to several TETRA systems.

The pre-emptive priorities are outside of the scope of the present document.

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

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 (FEs) and information flows. Stage 3 gives a precise description of the Supplementary Service from the implementation point of view. It defines the protocol 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 to the SwMI, for the MS and for the LS and can be applied over the ISI between TETRA systems. Aspects relating to all supplementary services are detailed in EN 300 392-9 [2].

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2 References (standards.iteh.ai)

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] ETSI EN 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".
- [2] ETSI EN 300 392-9: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 9: General requirements for supplementary services".
- [3] ETSI EN 300 392-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design".
- [4] ITU-T Recommendation Z.100: "Specification and Description Language (SDL)".
- [5] ISO/IEC 11574 (2000): "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit-mode 64 kbit/s bearer services - Service description, functional capabilities and information flows".
- [6] ETSI EN 300 392-3-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 1: General design".

3 Definitions and abbreviations

3.1 Definitions

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

authorized user: user who is authorized to define, activate, deactivate and interrogate the SS-PC

Functional Entity (FE): specifies the functional characteristics of the SS sub-entity within an MS, a LS or a SwMI related to an SS-PC action, e.g. management or operational functions of SS-PC

home system: TETRA system to which the subscriber identity is permanently defined

management functions: management functions for SS-PC are definition, activation, deactivation and interrogation

priority level: pre-agreed value allocated to each mobile Individual TETRA Subscriber Identity (ITSI) or Group TETRA Subscriber Identity (GTSI) on a per call basis

NOTE: It is used to determine priority access to network resources in the event of network congestion.

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

NOTE: The SwMI enables subscriber terminals to communicate with each other via the SwMI.

system 1: TETRA system to which SS-PC is defined, activated, deactivated and interrogated and in which SS-PC can be invoked and operated

system 2: TETRA system through which SS-PC definition, activation, deactivation and interrogation can be delivered. SS-PC can also be invoked and operated in system 2

user A: calling party which invokes SS-PC

user B: called party in a call in which SS-PC is operated

3.2 Abbreviations

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

CC	basic service Call Control functional entity
CCA	basic service Call Control functional entity Agent

NOTE: CC and CCA are applied as defined in ISO/IEC 11574 [5].

GTSI	Group TETRA Subscriber Identity
ITSI	Individual TETRA Subscriber Identity
LS	Line Station
MS	Mobile Station
SDL	Specification and Description Language
SS	Supplementary Service

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

SS-PC	Priority Call
SwMI	Switching and Management Infrastructure
TETRA	Terrestrial Trunked Radio

4 SS-PC stage 3 specification

4.1 General

This clause describes the SS-PC services offered by Supplementary Service (SS) and call control sub-entities of CMCE of the TETRA voice plus data layer 3 service boundary in the MS/LS. The SS-PC services shall be offered at the Supplementary Services service access point (TNSS-SAP), the Call Control services Service Access Point (TNCC-SAP). The SS-PC services described in this clause shall be applicable for the MS and the LS.

NOTE: The SS-PC services within the SwMI are outside the scope of the present document.

The SS-PC services specified in the present document shall complement the Supplementary services and Call control services specified in EN 300 392-2 [1] clause 12 and 11 respectively and the Supplementary Services general design standard EN 300 392-9 [2]. The SS-PC services shall act as sub-services within the general Supplementary services and Call control services.

SS-PC shall be an optional supplementary service for TETRA voice plus data layer 3. If SS-PC is supported, this clause shall specify the services and their availability.

4.2 SS-PC services offered over the TNSS-SAP

When the optional SS-PC definition, user definition, activation, deactivation and interrogation -indication are supported, they shall be provided at TNSS-SAP.

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

The SS-PC primitives for the user A (FE1) at the MS/LS TNSS-SAP shall be:

- a) INTERROGATE request; [SIST EN 300 392-12-10 V1.2.1:2006](https://standards.iteh.ai/catalog/standards/sist/9e8b48cc-5c97-4ee6-8581-d2de5d5d0e7d/sist-en-300-392-12-10-v1-2-1-2006)
- b) INTERROGATE indication; <https://standards.iteh.ai/catalog/standards/sist/9e8b48cc-5c97-4ee6-8581-d2de5d5d0e7d/sist-en-300-392-12-10-v1-2-1-2006>
- c) ASSIGN indication;
- d) ASSIGN response.

The SS-PC primitives for the authorized user (FE3) at the MS/LS TNSS-SAP shall be:

- a) DEFINE request;
- b) DEFINE indication;
- c) INTERROGATE request;
- d) INTERROGATE indication.

The activation and deactivation shall be done with the DEFINE request; the acknowledgement for activation and deactivation shall be done with DEFINE indication.

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

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

4.2.1 DEFINE request

DEFINE request primitive shall be offered from the user application to FE3 over TNSS-SAP. The primitive shall contain the SS-PC parameters listed in table 1.

The definition process may support a single individual subscriber or to a range or list of individual subscribers. The definition may also be made to one group or to a range or list of groups.

Table 1: DEFINE request contents

Parameter	Request	Remark
Subscriber identity	M	repeatable
Activated/deactivated	M	(see note 1)
Basic Services	M	repeatable
High priority value	O	Repeatable (see note 2)
Low priority value	O	Repeatable (see note 2)
Delivered to user A(s)	M	
Acknowledgement from user A(s)	C	(see note 3)
NOTE 1: Shall be used to indicate whether or not this PDU is used to activate a new PC value or to deactivate an existing PC value. When a PC value is deactivated, a pre-programmed default value may then apply.		
NOTE 2: It is not necessary to define both High and Low priority values. A missing high priority shall assume the same value as the low priority value while a missing low priority shall assume the lowest possible priority value.		
NOTE 3: Conditional on the information element "Delivered to user A(s)".		

4.2.2 DEFINE indication

DEFINE indication primitive shall be offered from FE3 to the user application over TNSS-SAP as an acknowledgement to a previously made definition request. The primitive shall contain the SS-PC parameters listed in table 2.

The parameters shall be interpreted as described for DEFINE request.

However, the Result for definition(s) parameter shall indicate the result for all listed subscriber numbers and all basic service types.

NOTE 1: If the acknowledgements are different for different Subscriber identities, FE3 may deliver several DEFINE indication primitives to the user application.

NOTE 2: If the Result for definition/activation/deactivation is "accepted, but some values changed by SwMI", the interrogation can be used to interrogate the values.

Table 2: DEFINE indication contents

Parameter	Indication	Remark
Subscriber identity	M	repeatable
Activated/deactivated	M	
Result for definition	M	repeatable

4.2.3 ASSIGN indication

ASSIGN indication primitive shall be offered from FE1 to the user application over TNSS-SAP. The primitive shall contain the SS-PC parameters listed in table 3.

The parameters shall be interpreted as described for DEFINE request.

FE1 shall only consider definitions made to user A's subscriber number or to a group number of which the subscriber is a member.

Table 3: ASSIGN indication contents

Parameter	Indication	Remark
Subscriber identity	M	
Activated/deactivated	M	
Basic Services	M	repeatable
High priority value	O	repeatable (see note 1)
Low priority value	O	repeatable (see note 1)
Acknowledgement from user A(s)	M	(see note 2)
NOTE 1: It is not necessary to define both High and Low priority values. A missing high priority shall assume the same value as the low priority value while a missing low priority shall assume the lowest possible priority value.		
NOTE 2: Parameter shall indicate if FE1 shall acknowledge the reception of the definition.		

4.2.4 ASSIGN response

ASSIGN response primitive shall be offered from user application to FE1 over TNSS-SAP as an acknowledgement to a previously received ASSIGN request, if acknowledgement was requested. The primitive shall contain the SS-PC parameters listed in table 4.

The parameters shall be interpreted as described for DEFINE request/indication.

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Table 4: ASSIGN response contents

Parameter	Response	Remark
Subscriber identity	M	
Activated/deactivated	M	
Basic Services	M	repeatable
Low priority value	O	repeatable
High priority value	O	repeatable
Result for definition	M	repeatable

4.2.5 INTERROGATE request

INTERROGATE request primitive shall be offered from -the user application to FE1 or FE3 over the TNSS-SAP. The primitive shall be used to interrogate SS-PC definitions. INTERROGATE request primitive shall contain the SS-PC parameters listed in table 5.

The parameters shall be interpreted as described for DEFINE request.

Table 5: INTERROGATE request contents

Parameter	Request	Remark
Subscriber identity	M	repeatable