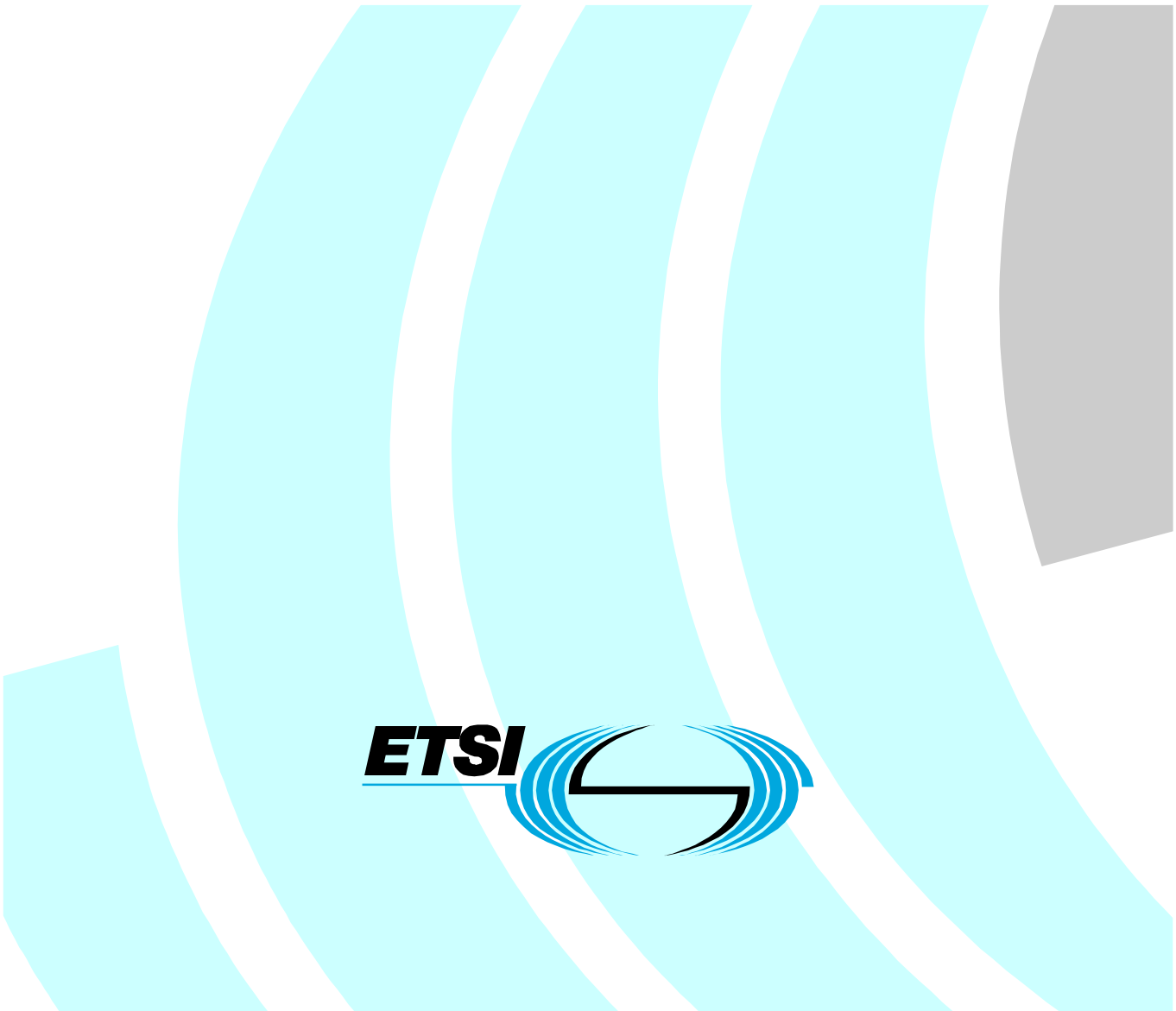
Final draft ETSI EN 300 392-10-10 V1.2.0 (2002-01)

European Standard (Telecommunications series)

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



Reference
REN/TETRA-03001-10-10

Keywords
data, priority call, radio, speech, stage 1,
supplementary service, TETRA, V+D

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

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).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

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 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";

Sub-part 1: "Call identification";

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";

Sub-part 9: "Access priority";

Sub-part 10: "Priority Call (PC)";

Sub-part 11: "Call Waiting (CW)";

Sub-part 12: "Call Hold (CH)";

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 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 Supplementary Service Priority Call (SS-PC) for 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 shall be outside the scope of the present document.

The SS-PC enables a user to have preferential access to the network resources in the TETRA system.

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.

[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:

authorized user: user who is authorized to change the range of priority level of the served users calls

priority level: pre-agreed value allocated to each mobile ITSI or GTSI on a per call basis

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

served user: call originator

3.2 Abbreviations

3.2.1 General abbreviations

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

GTSI	Group TETRA Subscriber Identity
ISDN	Integrated Services Digital Network
ITSI	Individual TETRA Subscriber Identity
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:

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 Priority Call (SS-PC) stage 1 specification

4.1 Description

4.1.1 General description

SS-PC allows the infrastructure to give priority access to network resources to calls which have been sent with priority status in times of congestion. The priority level shall not apply to the initial uplink access but shall apply to the resources across the infrastructure and to the radio link at the called user.

The priority level shall be sent with the initial call set-up message, or the network may select a default level if the user has not chosen a level, and the level may be indicated to the called user as part of normal call control information.

In a typical scenario there may be eight priority levels, each one in turn giving an enhanced performance in times of network congestion. A call attempt that has been assigned a higher priority than another call attempt shall be given resources by the infrastructure in preference to a call attempt with lower priority.

The precise queuing procedure shall be an operator option.

The uses of priority level may be e.g.:

- to determine the priority of queuing for resources in the network;
- to indicate the importance of the incoming call to the called user.

4.1.2 Qualifications on applicability to telecommunication services

This supplementary service shall be applicable to all TETRA circuit mode teleservices and to all TETRA circuit mode bearer services.

4.2 Procedures

4.2.1 Provision, assignment and withdrawal

Provision of SS-PC shall be by pre-arrangement with the service provider. System may withdraw the service temporarily or permanently at any time without further information.

SS-PC shall be provided on a per TETRA number (ITSI/GTSI) basis. For each ITSI/GTSI, the supplementary service may be subscribed to for every basic service subscribed to at that ITSI/GTSI or for only some of the basic services subscribed to at that ITSI/GTSI. A user shall be provided with a range of priority levels within which he may select on a per call basis.

The priority level ranges may be defined upon provision or the system may download priority values at any time for user ITSI/GTSI. MS may support those assigned values.

4.2.2 Normal procedures

4.2.2.1 Activation, deactivation, definition, registration, interrogation and cancellation

4.2.2.1.1 Activation and deactivation

SS-PC shall be activated by the service provider upon provision and deactivated upon withdrawal. The optional assignment may be used to activate and deactivate the priority levels upon assignment. The deactivation may force pre-defined priority values as set upon provision.

4.2.2.1.2 Remote activation and deactivation

Void.

4.2.2.1.3 Definition

As an implementation option, authorized/registered users may dynamically define the priority level or priority level range for each registered ITSI/GTSI. This process supplements the provision process, where the ITSIs shall be allocated a priority level range upon provision, and facilitates the "on line" change of priority level ranges. The defined values are downloaded to the user MSs using assignment.

4.2.2.1.4 Registration

As an implementation option authorized users, capable of defining and/or remotely activating or deactivating the priority level or priority level range, shall be registered with the applicable ITSI/GTSI range. The registration is a part of provisioning.

4.2.2.1.5 Interrogation

The infrastructure may provide interrogation, which can be local, remote or both.

If interrogation is provided, an SwMI shall support interrogation on a per number basis, e.g.:

- activated/de-activated;
- priority levels per service;
- result of the interrogation;
- assignment status; and
- whether acknowledgement of the assignment is requested from the user.

4.2.2.1.6 Cancellation

Shall not be applicable.

4.2.2.2 Invocation and operation

The served user shall be able to invoke SS-PC as part of the initial call set up by sending the required priority level. The priority level may be dynamically assigned.

In the instance where there is no congestion across the network resources, the served user's call shall be set up in the normal manner.

When the network resources have become congested, the infrastructure shall compare the priority level of each call attempt and allocate the resources, when they become available, to the call attempt with the highest priority level.

SS-PC may also be provided on a GTSI basis. If the caller is a member of the group and he dials the GTSI then the appropriate priority level associated with the GTSI should be used. If the caller is not a member of the group, one of his own priority levels should be used.

If the served user does not select a priority level to be associated with the call, the network may select which priority level is applied.

The network may also change the requested priority level applied for the call.

4.2.3 Exceptional procedures

4.2.3.1 Activation, deactivation, definition. registration, interrogation and cancellation

4.2.3.1.1 Activation and deactivation

MS may reject the activation in conjunction of the assignment.

4.2.3.1.2 Remote activation and deactivation

Void,

4.2.3.1.3 Definition

If the system cannot accept a definition request, the authorized user shall receive a notification that SS-PC definition was not successful. Possible causes could be:

- accepted but SS-PC priority values changed;
- users A(s) could not accept the request/ user A(s) was not reached;
- request failed for any reason;

- user not authorized; or
- unknown TETRA identity.

4.2.3.1.4 Registration

As a part of provisioning exceptions shall not be applicable.

4.2.3.1.5 Interrogation

If the SwMI cannot accept an interrogation request, the interrogating user shall receive a notification that SS-PC interrogation was unsuccessful. Possible causes for rejection could be:

- accepted, but one or more affected users could not accept the request/accepted, but one or more affected users where not reached;
- SS-PC not defined for the given identity;
- request failed for any reason;
- user not authorized; or
- unknown TETRA identity.

4.2.3.1.6 Cancellation

Shall not be applicable.

4.2.3.2 Invocation and operation

If the user attempts to make a call and invoke a priority level which is outside his normal range, the infrastructure shall automatically adjust the priority level to either the maximum or minimum value as appropriate and proceed with the call. No notification will be returned to the served user. In group call the call set-up may contain the selected priority level and the calling user may receive that information.

SS-PC shall be rejected by the TETRA if the served user does not have the appropriate profile to use the service.

If the infrastructure cannot invoke the service, no cause will be returned to the subscriber.

4.3 Interactions with other supplementary services

Interactions with other TETRA supplementary services are specified in clauses 4.3.1 to 4.3.30.

4.3.1 Calling Line Identification Presentation (SS-CLIP)

SS-PC shall not have any interaction with SS-CLIP.

4.3.2 COnnected Line identification Presentation (SS-COLP)

SS-PC shall not have any interaction with SS-COLP.

4.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)

SS-PC shall not have any interaction with SS-CLIR.

4.3.4 Call Report (SS-CR)

SS-PC shall not have any interaction with SS-CR.

4.3.5 Talking Party Identification (SS-TPI)

SS-PC shall not have any interaction with SS-TPI.

4.3.6 Call Forwarding Unconditional (SS-CFU)

SS-PC shall not have any interaction with SS-CFU.

4.3.7 Call Forwarding on Busy (SS-CFB)

SS-PC shall not have any interaction with SS-CFB.

4.3.8 Call Forwarding on No Reply (SS-CFNRy)

SS-PC shall not have any interaction with SS-CFNRy.

4.3.9 Call Forwarding on Not Reachable (SS-CFNRc)

SS-PC shall not have any interaction with SS-CFNRc.

4.3.10 List Search Call (SS-LSC)

SS-PC shall not have any interaction with SS-LSC.

It shall be possible to invoke SS-LSC and SS-PC at the same time thereby assigning each call attempt with the invoked priority level.

4.3.11 Call Authorized by Dispatcher (SS-CAD)

SS-PC shall not have any interaction with SS-CAD.

4.3.12 Short Number Addressing (SS-SNA)

SS-PC shall not have any interaction with SS-SNA.

It shall be possible to invoke SS-SNA and SS-PC at the same time thereby assigning call attempt a priority level.

4.3.13 Area Selection (SS-AS)

SS-PC shall not have any interaction with SS-AS.

4.3.14 Access Priority (SS-AP)

SS-PC shall not have any interaction with SS-AP.

4.3.15 Priority Call (SS-PC)

Not applicable.

4.3.16 Call Waiting (SS-CW)

SS-PC shall not have any interaction with SS-CW.

If the called user is engaged and the calling user has invoked this supplementary service then the priority level may be indicated to the called user in conjunction with the SS-CW indication.

4.3.17 Call HOLD (SS-HOLD)

SS-PC shall not have any interaction with SS-HOLD.

4.3.18 Call Completion to Busy Subscriber (SS-CCBS)

SS-PC shall not have any interaction with SS-CCBS.

4.3.19 Late Entry (SS-LE)

SS-PC shall not have any interaction with SS-LE.

The SS-LE broadcast may provide the priority level information of the group call to the terminal equipment and may be indicated to the called user.

4.3.20 Transfer of Control (SS-TC)

Void.

4.3.21 Pre-emptive Priority Call (SS-PPC)

A SS-PPC shall always have precedence over a SS-PC and it shall take resources away from the priority call if required.

4.3.22 Include Call (SS-IC)

SS-PC shall not have any interaction with SS-IC.

4.3.23 Advice of Charge (SS-AoC)

Void.

4.3.24 Barring of Outgoing Calls (SS-BOC)

SS-PC shall not have any interaction with SS-BOC.

4.3.25 Barring of Incoming Calls (SS-BIC)

An incoming SS-PC shall not be offered to the barred user.

4.3.26 Discreet Listening (SS-DL)

SS-PC shall not have any interaction with SS-DL.

4.3.27 Ambience Listening (SS-AL)

SS-PC shall not have any interaction with SS-AL.

4.3.28 Dynamic Group Number Assignment (SS-DGNA)

SS-PC shall not have any interaction with SS-DGNA.

4.3.29 Call Completion on No Reply (SS-CCNR)

SS-PC shall not have any interaction with SS-CCNR.

4.3.30 Call ReTention (SS-CRT)

SS-PC shall not have any interaction with SS-CRT.

4.4 Interworking considerations

When the served user migrates to another SwMI, the SS-PC priority level information is a part of the user supplementary services profile. The visited system may apply different priority levels than indicated in the service profile.

4.5 Overall SDL

Figure 1 contains the dynamic description of SS-PC using the Specification Description Language (SDL) defined in ITU-T Recommendation Z.100 [1]. The SDL process represents the behaviour of the network in providing SS-PC.

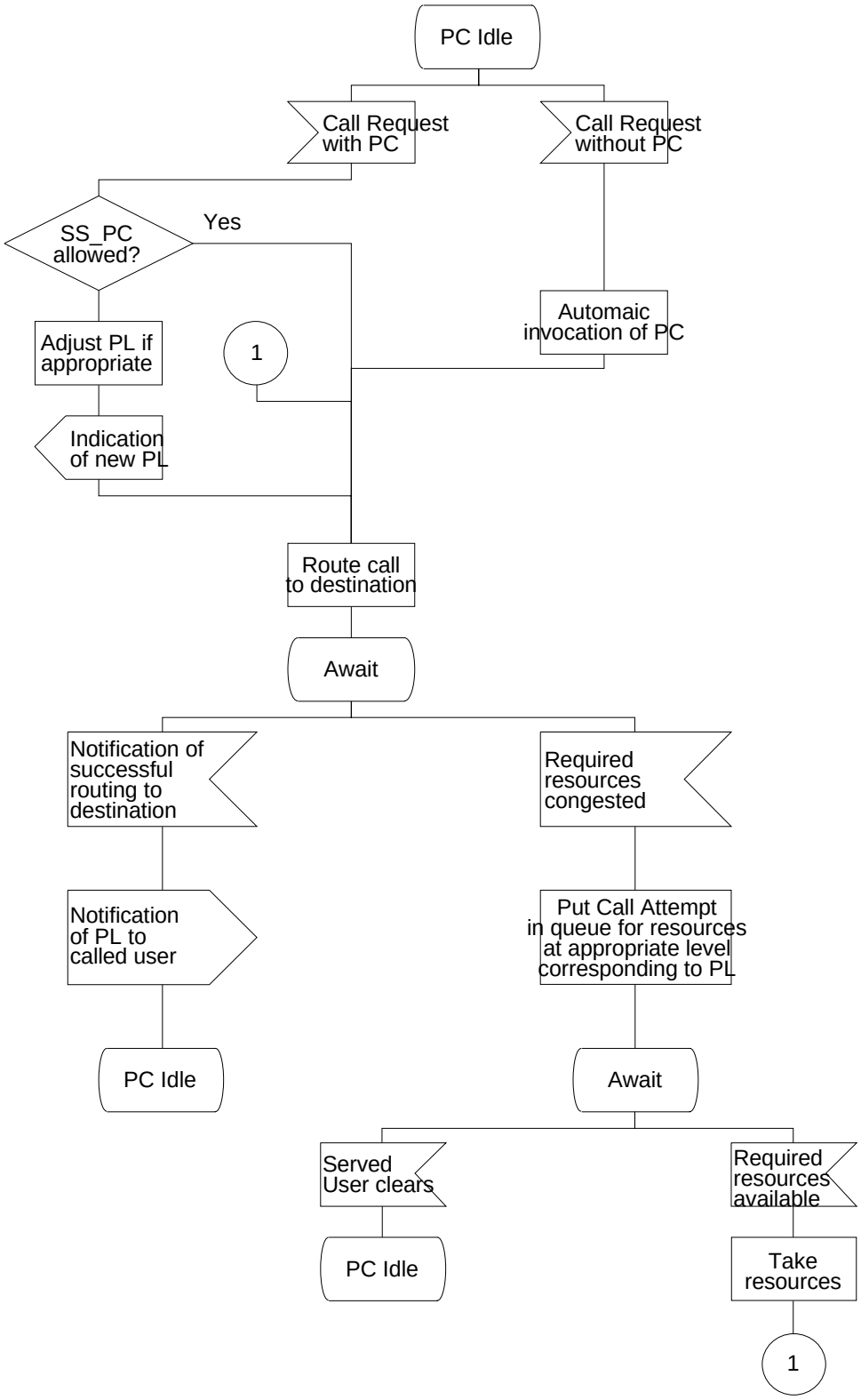


Figure 1: SS-PC supplementary service, overall SDL

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 300 392-10-10
V1.2.0	January 2002	One-step Approval Procedure OAP 20020524: 2002-01-23 to 2002-05-24