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Zasebno telekomunikacijsko omrežje (PTN) ï Medcentralni signalizacijski protokol - Dopolnilna storitev: dokonļanje klica

Private Telecommunication Network (PTN); Inter-exchange signalling protocol ; Call completion supplementary services

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Foreword

This European Telecommunication Standard (ETS) has been produced by the European Computer Manufacturers Association (ECMA) on behalf of its members and those of the European Telecommunications Standards Institute (ETSI).

This ETS is one of a series of standards defining services and signalling protocols applicable to Private Telecommunication Networks (PTNs). The series uses the Integrated Services Digital Network (ISDN) concepts as developed by CCITT and is also within the framework of standards for open systems interconnection as defined by ISO.

This particular ETS specifies the signalling protocol for use at the Q reference point in support of the Call Completion supplementary services.

The ETS is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO, CCITT, ETSI and other international and national standardisation bodies. It represents a pragmatic and widely based consensus.

This ETS was produced by ECMA using the ECMA guidelines for the production of standards and using the ECMA stylesheet. In order to avoid undue delays in the voting process for this ETS it has been agreed that this ETS will not be converted to the ETSI stylesheet.

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1 Scope

This European Telecommunication Standard (ETS) specifies the signalling protocol for the support of the Call Completion supplementary services (SS-CCBS, SS-CCNR) at the Q reference point between Private Telecommunication Network Exchanges (PTNXs) connected together within a Private Telecommunication Network (PTN).

SS-CCBS enables a calling User A, encountering a busy destination User B, to have the call completed when User B becomes not busy, without having to make a new call attempt.

SS-CCNR enables a calling User A, encountering a destination User B that, though alerted, does not answer, to have the call completed when User B becomes not busy again after a period of activity, without having to make a new call attempt.

The Q reference point is defined in Standard ISO/IEC 11579.

Service specifications are produced in three stages and according to the method specified in ENV 41005. This Standard is the output from stage 3, the definition of signalling protocols, for SS-CCBS and SS-CCNR. This Standard satisfies the requirements identified by the stage 1 and stage 2 specifications in ETS 300 365.

The signalling protocols for SS-CCBS and SS-CCNR operate partly on top of the signalling protocol for basic circuit switched call control, as specified in ETS 300 172, and partly independently of a basic call. The protocols use certain aspects of the generic procedures for the control of supplementary services specified in ETS 300 239.

The impact on the protocol of interactions between the Call Completion services and other supplementary services is outside the scope of this Standard.

This Standard is applicable to PTNXs which can interconnect to form a PTN.

2 Conformance

In order to conform to this Standard, a PTNX shall satisfy the requirements identified in the Protocol Implementation Conformance Statement (PICS) proforma in Annex A.

3 References

ISO/IEC 11579:	Information Technology - Telecommunications and Information Exchange between Systems - Private Integrated Services Network - Reference Configurations for PISN Exchanges (1994)
ETS 300 172:	Private Telecommunication Network (PTN); Inter-exchange signalling protocol; Circuit mode basic services (1994)
ETS 300 196-1:	Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification (1992)
ETS 300 239:	Private Telecommunication Network (PTN) - Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services (1992)
ETS 300 359-1:	Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification (1994)
ETS 300 365:	Private Telecommunication Network (PTN); Specification, functional model and information flows; Call completion supplementary services (1994)
ETS 300 171:	Private Telecommunication Networks (PTN); Specification, functional model and information flows; Control aspects of circuit mode basic services (1992)
ENV 41005:	Method for the Specification of Basic and Supplementary Services of Private Telecommunication Networks (1989)
ENV 41007-1:	Definition of Terms in Private Telecommunication Networks (1989)
CCITT Rec. I.112:	Vocabulary of terms for ISDNs (1988)
CCITT Rec. I.210:	Principles of telecommunication services supported by an ISDN and the means to describe them (1988)
CCITT Rec. Z.100:	Specification and description language (SDL) (1988)

4 Definitions

For the purposes of this Standard the following definitions apply.

4.1 External definitions

This Standard uses the following terms defined in other documents:

- Application Protocol Data Unit (APDU) (ETS 300 239)
- Basic Service (CCITT Rec. I.210)
- Busy (ETS 300 365)
- Call, Basic Call (ETS 300 239)
- Call Independent (ETS 300 239)
- Call Independent Signalling Connection (ETS 300 239)
- Call Related (ETS 300 239)
- End PTNX (ETS 300 239)
- Gateway PTNX (Incoming / Outgoing) (ETS 300 239)
- Interpretation APDU (ETS 300 239)
- Network Facility Extension (NFE) (ETS 300 239)
- Originating PTNX (ETS 300 172)
- Private Telecommunication Network Exchange (ENV 41007-1)
- Public ISDN (ENV 41007-1)
- SS-CC Recall (ETS 300 365)
- Signalling (CCITT Rec. I.112)
- Supplementary Service (CCITT Rec. I.210)
- Supplementary Service Control Entity (ETS 300 239)
- Telecommunication Network (ENV 41007-1)
- Terminal, Terminal Equipment (ENV 41007-1)
- Terminating PTNX (ETS 300 172)
- Transit PTNX (ETS 300 172)
- User (ETS 300 171-1)
- User A (ETS 300 365)
- User B (ETS 300 365)

4.2 CC Call

The re-initiation, in the course of executing a CC Request, of the previously unsuccessful call from User A to User B on behalf of User A, with or without Path Reservation.

4.3 CC Request

An instance of SS-CCBS or SS-CCNR.

4.4 Connection release

The release of the call independent signalling connection as soon as SS-CC has been initiated and the establishment of further call independent signalling connections for subsequent phases of the service.

4.5 Connection retention

The use of a single call independent signalling connection throughout the lifetime of a particular instance of SS-CC.

4.6 Path Reservation

The reservation of resources prior to the SS-CC Recall, by means of a basic call set up from the Originating to the Terminating PTNX, in order to have a bearer connection through the PTN available when User A accepts the SS-CC Recall.

4.7 Service retention

The optional capability to continue with a CC Request after the CC Call failed due to User B being busy again.

5 List of acronyms

APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation no. 1
CC	Call Completion
ISDN	Integrated Services Digital Network
NFE	Network Facility Extension
PICS	Protocol Implementation Conformance Statement
PTN	Private Telecommunication Network
PTNX	Private Telecommunication Network Exchange
SDL	Specification and Description Language
SS-CC	Supplementary Service Call Completion (i.e. SS-CCBS or SS-CCNR)
SS-CCBS	Supplementary Service Call Completion to Busy Subscriber
SS-CCNR	Supplementary Service Call Completion on No Reply
TE	Terminal Equipment

6 Signalling protocol for the support of SS-CCBS and SS-CCNR

6.1 SS-CCBS/CCNR description

Call Completion to Busy Subscriber (SS-CCBS) is a supplementary service which allows a calling User A, on encountering a busy called User B, to request that the PTN monitors User B and indicates to User A when User B becomes not busy. On response by User A to that indication the PTN will attempt to complete the call to User B.

Call Completion on No Reply (SS-CCNR) is a supplementary service which allows a calling User A, when the called User B does not respond to the call request, to request that the PTN monitors User B and indicates to User A when User B becomes not busy after a subsequent period of activity at User B's TE. On response by User A to that indication the PTN will attempt to complete the call to User B.

NOTE 1

Which activities at User B's TE would result in a 'B not busy' indication to User A is outside the scope of this Standard.

These supplementary services are applicable to all circuit mode basic services defined in ETS 300 171.

6.2 SS-CC operational requirements

6.2.1 Requirements on the Originating PTNX

Call establishment procedures for the outgoing side of an inter-PTNX link and call release procedures, as specified in ETS 300 172, shall apply.

Generic procedures for the call related control of supplementary services, as specified in ETS 300 239 for an End PTNX, shall apply. Additionally generic procedures for the call independent control (connection orientated) of supplementary services, as specified in ETS 300 239 for an Originating and a Terminating PTNX, shall apply.

6.2.2 Requirements on the Terminating PTNX

Call establishment procedures for the incoming side of an inter-PTNX link and call release procedures, as specified in ETS 300 172, shall apply.

Generic procedures for the call related control of supplementary services, as specified in ETS 300 239 for an End PTNX, shall apply. Additionally generic procedures for the call independent control (connection orientated) of supplementary services, as specified in ETS 300 239 for an Originating and a Terminating PTNX, shall apply.

6.2.3 Requirements on a Transit PTNX

Basic call procedures for call establishment and call clearing at a Transit PTNX, as specified in ETS 300 172, shall apply.

NOTE 2

The use of basic call timer T310 at a Transit PTNX can cause premature clearing of a reserved path if the timer value is too short. For this reason this Standard specifies the sending of CCITT progress description no. 8 "in-band information or appropriate pattern now available" by the Terminating PTNX, in order to stop timer T310, even though in-band tones and announcements are not applicable in this situation.

Generic procedures for the call related control and call independent control (connection orientated) of supplementary services, as specified in ETS 300 239 for a Transit PTNX, shall apply.