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Cordless Terminal Mobility (CTM);
Inter-exchange signalling protocol;
Cordless terminal outgoing call additional network feature

ETSI

Contents

Foreword

This final draft Interim European Telecommunication Standard (I-ETS) has been produced by the Communication, Networks, and Systems Interconnection Technical Committee (TC32) of ECMA on behalf of its members and those of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Voting phase of the ETSI standards approval procedure.

An ETSI standard may be given I-ETS status either because it is regarded as a provisional solution ahead of a more advanced standard, or because it is immature and requires a "trial period". The life of an I-ETS is limited to three years after which it can be converted into an ETS, have it is life extended for a further two years, be replaced by a new version, or be withdrawn.

Proposed announcement date	
Date of latest announcement of this I-ETS (doa):	3 months after ETSI publication

This I-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 approval process for this I-ETS, it has been agreed that this ETS will not be converted to the ETSI stylesheet.

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1 Scope

This Interim European Telecommunication Standard (I-ETS) specifies the signalling protocol for the support of the Cordless Terminal Outgoing Call additional network feature (ANF-CTMO) at the Q reference point between Private Integrated Services Network Exchanges (PINX) connected together within a Private Integrated Services Network (PISN).

ANF-CTMO permits the PISN to process call requests from a CTM user at the home location, if required.

The Q reference point is defined in ISO/IEC 11579-1 [3].

Service specifications are produced in three stages and according to the method specified in ETS 300 387 [7]. This I-ETS contains the stage 3 specification for the Q reference point and satisfies the requirements (concerning ANF-CTMO) identified by the stage 1 and stage 2 specifications in ETS 300 694 [8] and ETS 300 695 [9], respectively.

The signalling protocol for ANF-CTMO operates on top of the signalling protocol for basic circuit switched call control, as specified in ETS 300 172 [2], and uses certain aspects of the generic procedures for the control of supplementary services specified in ETS 300 239 [4].

This I-ETS also specifies additional signalling protocol requirements for the support of interactions at the Q reference point between ANF-CTMO and other supplementary services and ANFs.

> NOTE: Additional interactions that have no impact on the signalling protocol at the Q reference point can be found in the relevant stage 1 specifications.

This standard is applicable to PINXs which can interconnect to form a PISN.

2 Conformance

In order to conform to this standard, a PINX shall satisfy the requirements identified in the Protocol Implementation Conformance Statement (PICS) proforma in annex A.

Conformance to this standard includes conforming to those clauses that specify protocol interactions between ANF-CTMO and other supplementary services and ANFs for which signalling protocols at the Q reference point are supported in accordance with the stage 3 standards concerned.

3 References

This I-ETS incorporates by dated and 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 I-ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1]   ETS 300 696 (1996): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Cordless Terminal Incoming Call Additional Network Feature (ANF-CTMI)".

[2]   ETS 300 172 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit-mode basic services".

[3]   ISO/IEC 11579-1 (1994): "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Part 1: Reference configuration for PISN Exchanges (PINX)".

[4]   ETS 300 239 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services".

[5]   ETS 300 257 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Diversion supplementary services".

[6]   ETS 300 259 (1995): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Path replacement additional network feature".

[7]   ETS 300 387 (1994): "Private Telecommunication Network (PTN); Method for the specification of basic and supplementary services".

[8]   ETS 300 694 (1996): "Private Integrated Services Network (PISN); Cordless Terminal Mobility (CTM); Call handling additional network features; Service description".

[9]   ETS 300 695 (1996): "Private Integrated Services Network (PISN); Cordless Terminal Mobility (CTM); Call handling additional network features; Function capabilities and information flows".

[10]   CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".

[11]   CCITT Recommendation Z.100 (1988):   "Specification   and   description language".

4   Definitions

For the purposes of this I-ETS, the following definitions apply.

4.1   External definitions

This I-ETS uses the following terms defined in other documents:

Additional Network Feature (ANF)	ETS 300 239 [4]
Application Protocol Data Unit (APDU)	ETS 300 239 [4]
Call, Basic Call	ETS 300 239 [4]
Call Related	ETS 300 239 [4]
CTM user	ETS 300 694 [8]
End PINX	ETS 300 239 [4]
Interpretation APDU	ETS 300 239 [4]
Network Facility Extension (NFE)	ETS 300 239 [4]
Originating PINX	ETS 300 172 [2]
Private Integrated Services Network (PISN)	ISO/IEC 11579-1 [3]
Private Integrated Services Network Exchange (PINX)	ISO/IEC 11579-1 [3]
Signalling	CCITT Recommendation I.112 [10]
Supplementary Service Control Entity	ETS 300 239 [4]
Subsequent PINX	ETS 300 172 [2]
Terminating PINX	ETS 300 172 [2]
Transit PINX	ETS 300 172 [2]

4.2   Home Data Base (HDB)

The database in which the data on the current location and associated parameters of a cordless terminal or mobile user are stored.

4.3   Home PINX

The PINX which has direct access to the HDB entry for a particular CTM user.

5   List of acronyms

For the puroposes of this I-ETS, the following acronyms apply:

ANF	Additional Network Feature
ANF-CTMO	Additional Network Feature Outgoing CTM Call Handling
APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation no. 1
CTM	Cordless Terminal Mobility

HDB   Home Data Base
ISDN   Integrated Services Digital Network
NFE   Network Facility Extension
PICS   Protocol Implementation Conformance Statement
PINX   Private Integrated Services Network eXchange
PISN   Private Integrated Services Network
SDL   Specification and Description Language

6 Signalling protocol for the support of ANF-CTMO

6.1 ANF-CTMO description

ANF-CTMO permits the PISN to process call requests from a CTM user at the home location, if required.

> NOTE: Further actions that may be performed at the visited location - verification of the CTM user's identity, local access to the service profile, local call processing - are outside the scope of this I-ETS.

6.2 ANF-CTMO operational requirements

6.2.1 Requirements on the Originating PINX

Call establishment procedures for the outgoing side of an inter-PINX link and call release procedures, as specified in ETS 300 172 [2], shall apply.

Generic procedures for the call related control of supplementary services, as specified in ETS 300 239 [4] for an End PINX, shall apply.

6.2.2 Requirements on the Home PINX

Call establishment procedures for the incoming side of an inter-PINX link and call release procedures, as specified in ETS 300 172 [2], shall apply.

Generic procedures for the call related control of supplementary services, as specified in ETS 300 239 [4] for an End PINX, shall apply.

6.2.3 Requirements on a Transit PINX

Basic call procedures for call establishment and call clearing at a Transit PINX, as specified in ETS 300 172 [2], shall apply.

Generic procedures for the call related control of supplementary services, as specified in ETS 300 239 [4] for a Transit PINX, shall apply.

6.3 ANF-CTMO coding requirements

6.3.1 Operations

Table 1: Operations in support of ANF-CTMO

```
ANF-CTMO-Operations {      iso (1)    identified-organization (3)    icd-ecma (0012)
                           standard (0) qsig-cordless-terminal-outgoing-call (233)
                           operations (0)  }

DEFINITIONS        EXPLICIT TAGS ::=

BEGIN

IMPORTS

        OPERATION, ERROR    FROM      Remote-Operation-Notation
                            { joint-iso-ccitt (2)  remote-operations (4)  notation (0) }

        Extension          FROM      Manufacturer-specific-service-extension-definition
                           { iso (1) standard (0)
                           pss1-generic-procedures (11582)   msi-definition (0)  }

        PartyNumber   FROM   Addressing-Data-Elements
                           { iso (1)   standard (0)
                           pss1-generic-procedures (11582) addressing-data-elements (9)  };

CtmoCall             ::=  OPERATION
                          ARGUMENT        CtmoArg

CtmoArg              ::=  SEQUENCE  {
                          destinationNumber  [0]  PartyNumber   OPTIONAL,
                          sendingComplete    [1]  IMPLICIT NULL        OPTIONAL,
                          extension               CHOICE
                          {    single        [2]  IMPLICIT Extension,
                               multiple      [3]  IMPLICIT SEQUENCE OF Extension
                          }  OPTIONAL     }
ctmoCall       CtmoCall ::=71
END   -- of ANF-CTMO-Operations
```

6.3.2 Information elements

6.3.2.1 Facility information element

The operation defined in 6.3.1 shall be coded in the Facility information element in accordance with subclause 11.3.3 of ETS 300 239 [4].

The Facility information element shall always contain an NFE with the destinationEntity element having value endPINX.

A Facility information element conveying a ctmoCall invoke APDU shall also contain an Interpretation APDU with value clearCallIfAnyInvokePduNotRecognised, if sent in a SETUP message. If sent in a FACILITY message, the Interpretation APDU shall either be omitted or included with value reject-Any-Unrecognised-InvokePdu.

6.3.2.2 Other information elements

Any other information elements (e.g. Calling party number, Called party number) shall be coded in accordance with the rules of ETS 300 172 [2] and ETS 300 239 [4].

6.3.3 Messages

The Facility information element shall be conveyed in the messages as specified in clause 10 of ETS 300 239 [4].

6.4 ANF-CTMO State definitions

6.4.1 States at the Originating PINX

The procedures for the Originating PINX are written in terms of the following conceptual states existing within the ANF-CTMO Service Control entity in that PINX in association with a particular CTMO Request.

6.4.1.1 CTMO-Idle

This state exists if ANF-CTMO is not active.

6.4.2 States at the Home PINX

The procedures for the Home PINX are written in terms of the following conceptual states existing within the ANF-CTMO Service Control entity in that PINX in association with a particular CTMO Request.

6.4.2.1 CTMO-Idle

This state exists if ANF-CTMO is not active.

6.4.2.2 CTMO-Await-Info

This state exists while further address information can be received in overlap mode.

6.5 ANF-CTMO signalling procedures

Examples of message sequences are shown in annex B.

6.5.1 Actions at the Originating PINX

The SDL representation of procedures at the Originating PINX is shown in clause C.1 of annex C.

6.5.1.1 Normal procedures

If the Originating PINX decides to pass to the Home PINX for processing a call request that was initiated by the CTM user, the Originating PINX shall send a SETUP message according to ETS 300 172 [2] to the Home PINX. The SETUP message shall contain a ctmoCall invoke APDU, in the Calling party number information element the number of the CTM user, and in the Called party number information element a number sufficient to route to the CTM user's Home PINX. If (part of) the intended destination number is already available it shall be included in element destinationNumber of the invoke APDU's argument. If the destination number is complete, element sendingComplete may also be included in the argument.

> NOTE: The number to be used in the Called party number information element is outside the scope of this I-ETS. It could, for example, be the number of the CTM user.

Subsequently, if the destination number sent in the SETUP message was not complete, additional address information from the CTM user shall be included in the argument of ctmoCall invoke APDUs, which shall be sent to the Home PINX in FACILITY messages, with the digit(s) encoded in element destinationNumber. The end of number information transmission may be indicated to the Home PINX by means of a sendingComplete element.

6.5.1.2 Exceptional procedures

Not applicable.

6.5.2   Actions at the Home PINX

The SDL representation of procedures at the Home PINX is shown in clause C.2 of annex C.

6.5.2.1   Normal procedures

If on receipt of a SETUP message with a ctmoCall invoke APDU enough digits of the destination number are present in the argument of the APDU to select a route for call extension, the Home PINX shall initiate call establishment towards the intended destination in accordance with ETS 300 172 [2] and join the two call legs. If the destination number is not complete, the Home PINX shall enter state CTMO-Await-Info, optionally send a PROGRESS message with progress description number 8 to the Originating PINX to stop T310 at Transit PINXs, and start timer T1. Otherwise it shall remain in state CTMO-Idle.

> NOTE: The only purpose of this progress description is to stop timer T310. It does not mean that In-band information is necessarily provided.

While in state CTMO-Await-Info, additional number information received as argument of ctmoCall invoke APDUs in a FACILITY message shall be used to select a route for call extension or, if the call has already been extended, passed on to the Subsequent PINX. If the Home PINX regards the number information complete it shall stop timer T1, initiate call establishment towards the intended destination in accordance with ETS 300 172 [2] if not already done, join the two call legs, and return to state CTMO-Idle. Otherwise it shall restart timer T1 and stay in state CTMO-Await-Info.

If a sendingComplete element is contained in a ctmoCall invoke APDU received while in state CTMO-Await-Info, the Home PINX shall process any number information present in the argument, stop timer T1, initiate call establishment towards the intended destination in accordance with ETS 300 172 [2] if not already done, join the two call legs, and return to state CTMO-Idle.

6.5.2.2   Exceptional procedures

If timer T1 expires the Home PINX shall return to state CTMO-Idle and:

-        if the number information received so far is considered sufficient, initiate call establishment towards the intended destination in accordance with ETS 300 172 [2], if not already done, and join the two call legs;

-        if the information is not sufficient to proceed, initiate call clearing with an appropriate cause value, e.g. # 28 "invalid number format (address incomplete)".

A ctmoCall invoke APDU received in a FACILITY message while in state CTMO-Idle shall be ignored.

6.5.3   Actions at the Transit PINX

No special actions are required for ANF-CTMO.

6.6   Impact of interworking with public ISDNs

Not applicable.

6.7   Impact of interworking with non-ISDNs

Not applicable.

6.8   Protocol interactions between ANF-CTMO and other supplementary services and ANFs

This subclause specifies protocol interactions with other supplementary services and ANFs for which stage 3 standards had been published at the time of publication of this I-ETS. For interactions with supplementary services and ANFs for which stage three ETSs are published subsequent to the publication of this I-ETS, see those other stage three ETSs.

NOTE 1: Simultaneous conveyance of APDUs for ANF-CTMO and another supplementary service or ANF in the same message, each in accordance with the requirements of its respective stage 3 standard, does not, on its own, constitute a protocol interaction.

NOTE 2: The transmission of a Facility information element on one leg as a result of receiving a Facility information element on the other leg does not constitute a protocol interaction.

NOTE 3: If the Home PINX acts as the Originating PINX with regards to supplementary services is outside the scope of this I-ETS.

6.8.1 Interaction with Calling Name Identification Presentation (SS-CNIP)

No interaction.

6.8.2 Interaction with Connected Name Identification Presentation (SS-CONP)

No interaction.

6.8.3 Interaction with Call Transfer (SS-CT)

No interaction.

6.8.4 Interaction with Call Diversion (SS-DIV)

On receipt of a callRerouting invoke APDU while in state CTMO-Idle the Home PINX may act as the Rerouting PINX.

6.8.5 Interaction with Call Completion to Busy Subscriber (SS-CCBS)

No interaction.

6.8.6 Interaction with Call Completion on No Reply (SS-CCNR)

No interaction.

6.8.7 Interaction with Call Offer (SS-CO)

No interaction.

6.8.8 Interaction with Call Intrusion (SS-CI)

No interaction.

6.8.9 Interaction with Do Not Disturb (SS-DND)

No interaction.

6.8.10 Interaction with Do Not Disturb Override (SS-DNDO)

No interaction.

6.8.11 Interaction with Path Replacement (ANF-PR)

The Home PINX may act as the Co-operating PINX when receiving a prPropose invoke APDU from either side.

6.8.12 Interaction with Cordless Terminal Mobility Incoming Call (ANF-CTMI)

A SETUP containing a ctmoCall invoke APDU shall not be redirected by means of ANF-CTMI.

6.8.13　Interaction with Cordless Terminal Location Registration (SS-CTLR)

No interaction.

6.8.14　Interaction with Authentication of a CTM user (SS-CTAT)

No interaction.

6.8.15　Interaction with Authentication of the PISN (SS-CTAN)

No interaction.

6.9　Parameter values (timers)

6.9.1　Timers at the Originating PINX

None.

6.9.2　Timers at the Home PINX

T1　Information receiving:

This timer is started on receipt of the first ctmoCall invoke APDU with incomplete number information, restarted on receipt of a further ctmoCall invoke APDU with incomplete number information, and stopped when a ctmoCall invoke APDU containing final number information or an element sendingComplete is received.

On expiry of timer T1 the call is either cleared or proceeds as normal basic call.

The value of timer T1 should be in the range 14 - 16 s.

Annex A (normative): Protocol Implementation Conformance Statement (PICS) Proforma

A.1 Introduction

The supplier of a protocol implementation which is claimed to conform to this I-ETS shall complete the following Protocol Implementation Conformance Statement (PICS) proforma.

A completed PICS proforma is the PICS for the implementation in question. The PICS is a statement of which capabilities and options of the protocol have been implemented. The PICS can have a number of uses, including use:

- by the protocol implementor, as a check list to reduce the risk of failure to conform to the standard through oversight;

- by the supplier and acquirer, or potential acquirer, of the implementation, as a detailed indication of the capabilities of the implementation, stated relative to the common basis for understanding provided by the standard's PICS proforma;

- by the user or potential user of the implementation, as a basis for initially checking the possibility of interworking with another implementation - while interworking can never be guaranteed, failure to interwork can often be predicted from incompatible PICSs;

- by a protocol tester, as the basis for selecting appropriate tests against which to assess the claim for conformance of the implementation.

A.2 Instructions for completing the PICS proforma

A.2.1 General structure of the PICS proforma

The PICS proforma is a fixed format questionnaire divided into subclauses each containing a group of individual items. Each item is identified by an item number, the name of the item (question to be answered), and the reference(s) to the clause(s) specifying the item in the main body of this I-ETS.

The "Status" column indicates whether an item is applicable and if so whether support is mandatory or optional. The following terms are used:

m   mandatory (the capability is required for conformance to the protocol);
o   optional (the capability is not required for conformance to the protocol, but if the capability is
            implemented it is required to conform to the protocol specifications);
o.<n>   optional, but support of at least one of the group of options labelled by the same numeral <n>
            is required;
x   prohibited;
c.<cond>   conditional requirement, depending on support for the item or items listed in condition
            <cond>;
<item>:m   simple conditional requirement, the capability being mandatory if item number <item> is
            supported, otherwise not applicable;
<item>:o   simple conditional requirement, the capability being optional if item number <item> is
            supported, otherwise not applicable.

Answers to the questionnaire items are to be provided either in the "Support" column, by simply marking an answer to indicate a restricted choice (Yes or No), or in the "Not Applicable" column (N/A).

A.2.2 Additional Information

Items of Additional Information allow a supplier to provide further information intended to assist the interpretation of the PICS. It is not intended or expected that a large quantity will be supplied, and a PICS

can be considered complete without any such information. Examples might be an outline of the ways in which a (single) implementation can be set up to operate in a variety of environments and configurations.

References to items of Additional Information may be entered next to any answer in the questionnaire, and may be included in items of Exception information.

A.2.3   Exception Information

It may occasionally happen that a supplier will wish to answer an item with mandatory or prohibited status (after any conditions have been applied) in a way that conflicts with the indicated requirement. No pre-printed answer will be found in the Support column for this. Instead, the supplier is required to write into the Support column an x.<i> reference to an item of Exception Information, and to provide the appropriate rationale in the Exception item itself.

An implementation for which an Exception item is required in this way does not conform to this I-ETS. A possible reason for the situation described above is that a defect in the standard has been reported, a correction for which is expected to change the requirement not met by the implementation.

A.3   PICS proforma for I-ETS 300 808

A.3.1   Implementation Identification

Supplier	
Contact point for queries about the PICS	
Implementation Name(s) and Version(s)	
Other information necessary for full identification, e.g., name(s) and version(s) for machines and/or operating systems; system name(s)	

Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.

The terms Name and Version should be interpreted appropriately to correspond with a supplier's terminology (e.g. Type, Series, Model).

A.3.2   Protocol Summary

Protocol Version	1.0
Addenda Implemented (if applicable)	
Amendments Implemented	
Have any exception items been required (see subclause A.2.3)?	No [ ] Yes [ ] (The answer YES means that the implementation does not conform to this I-ETS)

Date of Statement	

A.3.3 General

Item	Question/feature	References	Status	N/A	Support
A1	PINX can act as Originating PINX for basic calls		o.1		Yes [ ] No [ ]
A2	PINX can act as Home PINX for basic calls		o.1		Yes [ ] No [ ]
A3	Support of relevant procedures of ETS 300 172 [2] and ETS 300 239 [4]	6.2	m		Yes [ ]

A.3.4 Procedures

Item	Question/feature	References	Status	N/A	Support
B1	Ctmo procedures at Originating PINX	6.5.1	A1:m	[ ]	m: Yes [ ]
B2	Ctmo procedures at Home PINX	6.5.2	A2:m	[ ]	m: Yes [ ]

A.3.5 Coding

Item	Question/feature	References	Status	N/A	Support
C1	Sending of ctmoCall invoke APDU	6.3.1	A1:m	[ ]	m: Yes [ ]
C2	Receipt of ctmoCall invoke APDU	6.3.1	A2:m	[ ]	m: Yes [ ]

A.3.6 Timers

Item	Question/feature	References	Status	N/A	Support
D1	Support of timer T1	6.9.2	A2:m	[ ]	m: Yes [ ] Value: ....

A.3.7 Protocol interactions

A.3.7.1 Interaction with Call Diversion

Item	Question/feature	References	Status	N/A	Support
E3	Support of Call Diversion	ETS 300 257 [5]	o		Yes [ ] No [ ]
E4	Home PINX acts as Rerouting PINX	6.8.4	c.2	[ ]	o: Yes [ ] No [ ]

c.2:   if A2 and E3 then o else N/A

A.3.7.2 Interaction with Path Replacement

Item	Question/feature	References	Status	N/A	Support
E5	Support of Path Replacement	ETS 300 259 [6]	o		Yes [ ] No [ ]
E6	Home PINX acts as Cooperating PINX	6.8.11	c.3	[ ]	o: Yes [ ] No [ ]

c.3:   if A2 and E5 then o else N/A

A.3.7.3 Interaction with Cordless Terminal Incoming Call

Item	Question/feature	References	Status	N/A	Support
E9	Support of ANF-CTMI	ETS 300 696 [1]	o		Yes [ ] No [ ]
E10	Home PINX does not reroute SETUP with ctmoCall invoke APDU	6.8.12	c.5	[ ]	m: Yes [ ]

c.5:   if A2 and E9 then m else N/A

Annex B (informative):   Examples of message sequences

This annex describes some typical message flows for ANF-CTMO. The following conventions are used in the figures of this annex.

1)   The following notation is used:

Call related message containing an ANF-CTMO APDU
Call related message without ANF-CTMO APDU

SETUP   Message name
xxx.inv   Invoke APDU for operation xxx

2)   The figures show messages exchanged via Protocol Control between the Originating PINX and a Transit PINX and between a Transit PINX and the Home PINX. Only messages relevant to ANF-CTMO are shown.

3)   Only the relevant information content (ANF-CTMO APDUs) is listed below each message name. The Facility information elements containing the ANF-CTMO APDUs are not explicitly shown. Information with no impact on ANF-CTMO is not shown.

B.1   Successful invocation of ANF-CTMO with overlap operation

Figure B.1 shows an example of the invocation of ANF-CTMO where the destination number is sent in pieces.
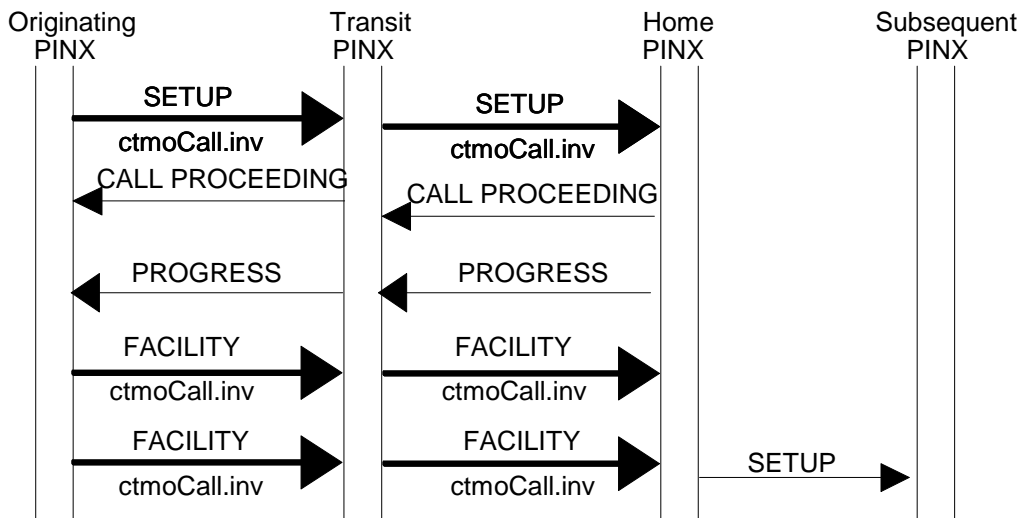
Figure B.1: Successful invocation of ANF-CTMO with overlap operation

B.2   Successful invocation of ANF-CTMO with en-bloc operation

Figure B.2 shows an example of the invocation of ANF-CTMO where the whole destination number is sent in the first message.
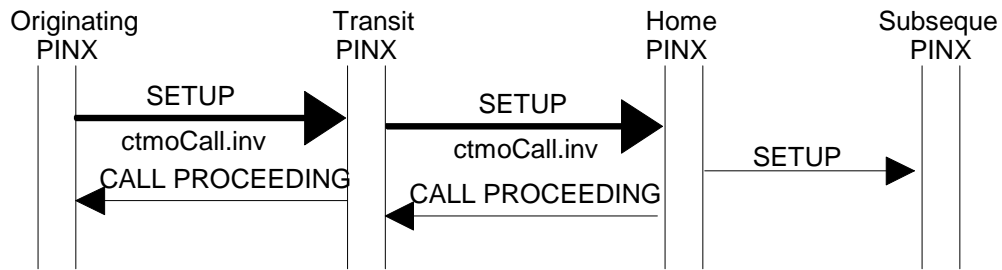

Figure B.2: Successful invocation of ANF-CTMO with en-bloc operation

Annex C (informative):   Specification and Description Language (SDL) representation of procedures

The diagrams in this annex use the Specification and Description Language defined in CCITT Recommendation Z.100 [11].

Each diagram represents the behaviour of an ANF-CTMO Service Control entity at a particular type of PINX. In accordance with the protocol model described in ETS 300 239 [4], the Supplementary Service Control entity uses, via the Coordination function, the services of Generic Functional Procedures Control and Basic Call Control.

Where an output symbol represents a primitive to the Coordination function, and that primitive results in a message being sent, the output symbol bears the name of the message and any remote operations APDU(s) contained in that message. In the case of a message specified in ETS 300 172 [2], basic call actions associated with the sending of that message are deemed to occur.

Where an input symbol represents a primitive from the Coordination function, and that primitive is the result of a message being received, the input signal bears the name of the message and any remote operations APDU(s) contained in that message. In the case of a message specified in ETS 300 172 [2], basic call actions associated with the receipt of that message are deemed to have occurred.

The following abbreviation is used:

    inv   Invoke APDU

C.1 Behaviour of the Originating PINX

Figure C.1 shows the behaviour of the Originating PINX.

Input signals from the left represent internal primitives. Output signals to the right represent messages to the peer SS-Control entity (i.e. in the Home PINX).

Figure C.1: Originating PINX behaviour
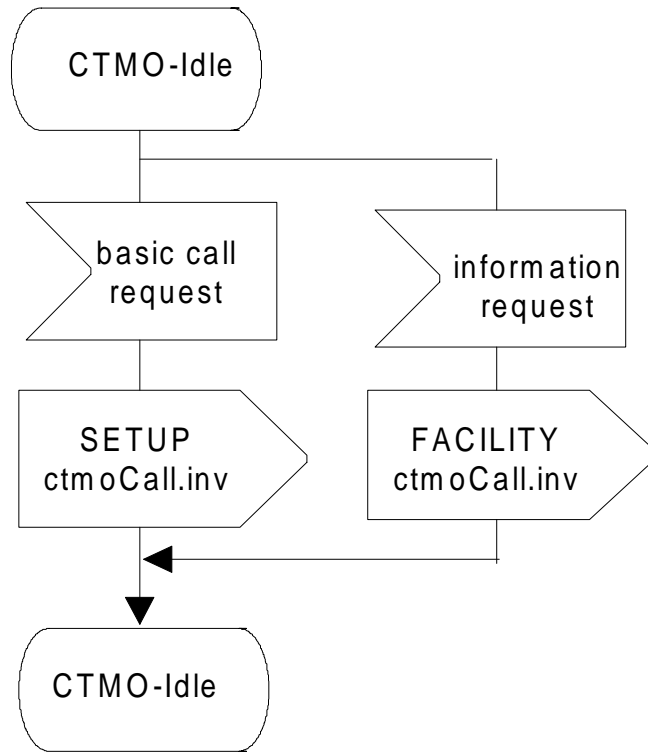
C.2 Behaviour of the Home PINX

Figures C.2 and C.3 show the behaviour of the Home PINX.

Input signals from the left represent messages from the peer SS-Control entity (i.e. in the Originating PINX). Output signals to the right and input signals from the right represent internal primitives.
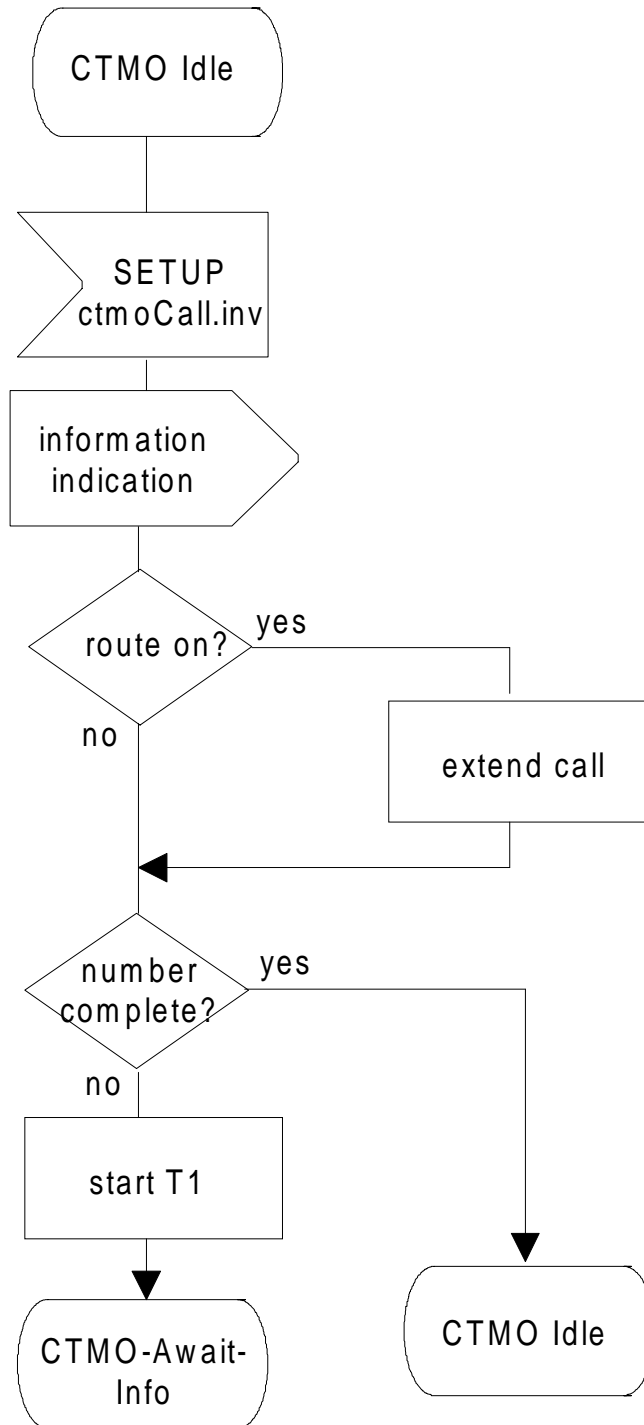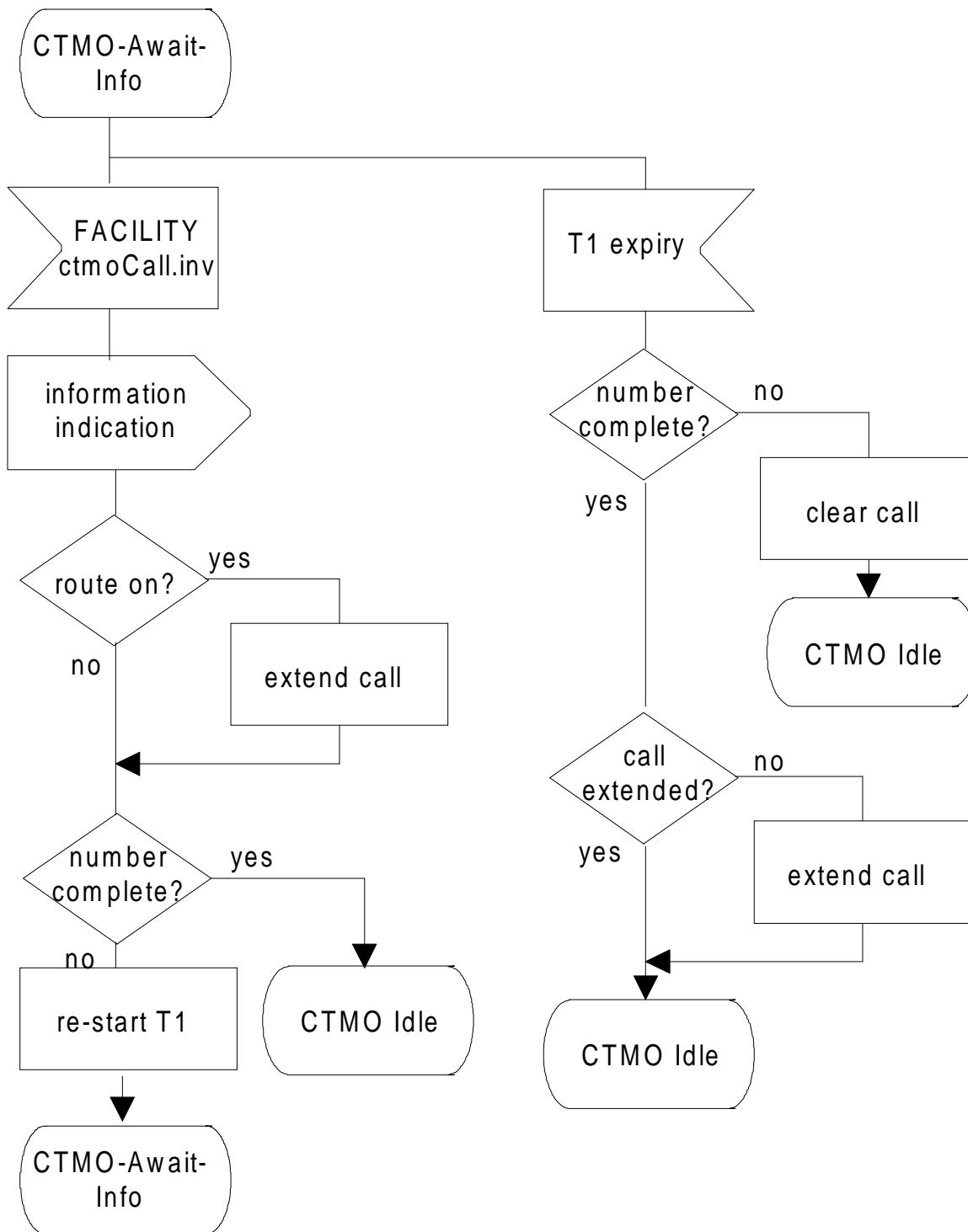

Figure C.2: Home PINX behaviour (part 1)

Figure C.3: Home PINX behaviour (part 2)

Annex D (informative): Imported data types

The following is an extract from module "Addressing-Data-Elements" defined in ETS 300 239 [4].

```
- Definition of Type PartyNumber      -
PartyNumber              ::=           CHOICE   {
                         unknownPartyNumber         [0] IMPLICIT NumberDigits,
                         publicPartyNumber          [1] IMPLICIT PublicPartyNumber,
                         dataPartyNumber            [3] IMPLICIT NumberDigits,
                         telexPartyNumber           [4] IMPLICIT NumberDigits,
                         privateNumber              [5] IMPLICIT PrivatePartyNumber,
                         nationalStandardPartyNumber [8] IMPLICIT NumberDigits  }
NumberDigits             ::=     NumericString ( SIZE (1..20) )
PrivatePartyNumber       ::=     SEQUENCE  {   privateTypeOfNumber    PrivateTypeOfNumber,
                                               privateNumberDigits    NumberDigits      }
PrivateTypeOfNumber      ::=     ENUMERATED  { unknown                (0),
                                      level2RegionalNumber            (1),
                                      level1RegionalNumber            (2),
                                      pISNSpecificNumber              (3),
                                      localNumber                     (4),
                                      abbreviatedNumber               (6)     }
PublicPartyNumber        ::=     SEQUENCE  {   publicTypeOfNumber     PublicTypeOfNumber,
                                               publicNumberDigits     NumberDigits      }
PublicTypeOfNumber       ::=     ENUMERATED  { unknown                (0),
                                      internationalNumber             (1),
                                      nationalNumber                  (2),
                                      networkSpecificNumber           (3),
                                      subscriberNumber                (4),
                                      abbreviatedNumber               (6)     }
```

History

Document history			
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April 1997	Vote	V 9726:	1997-04-29 to 1997-06-27