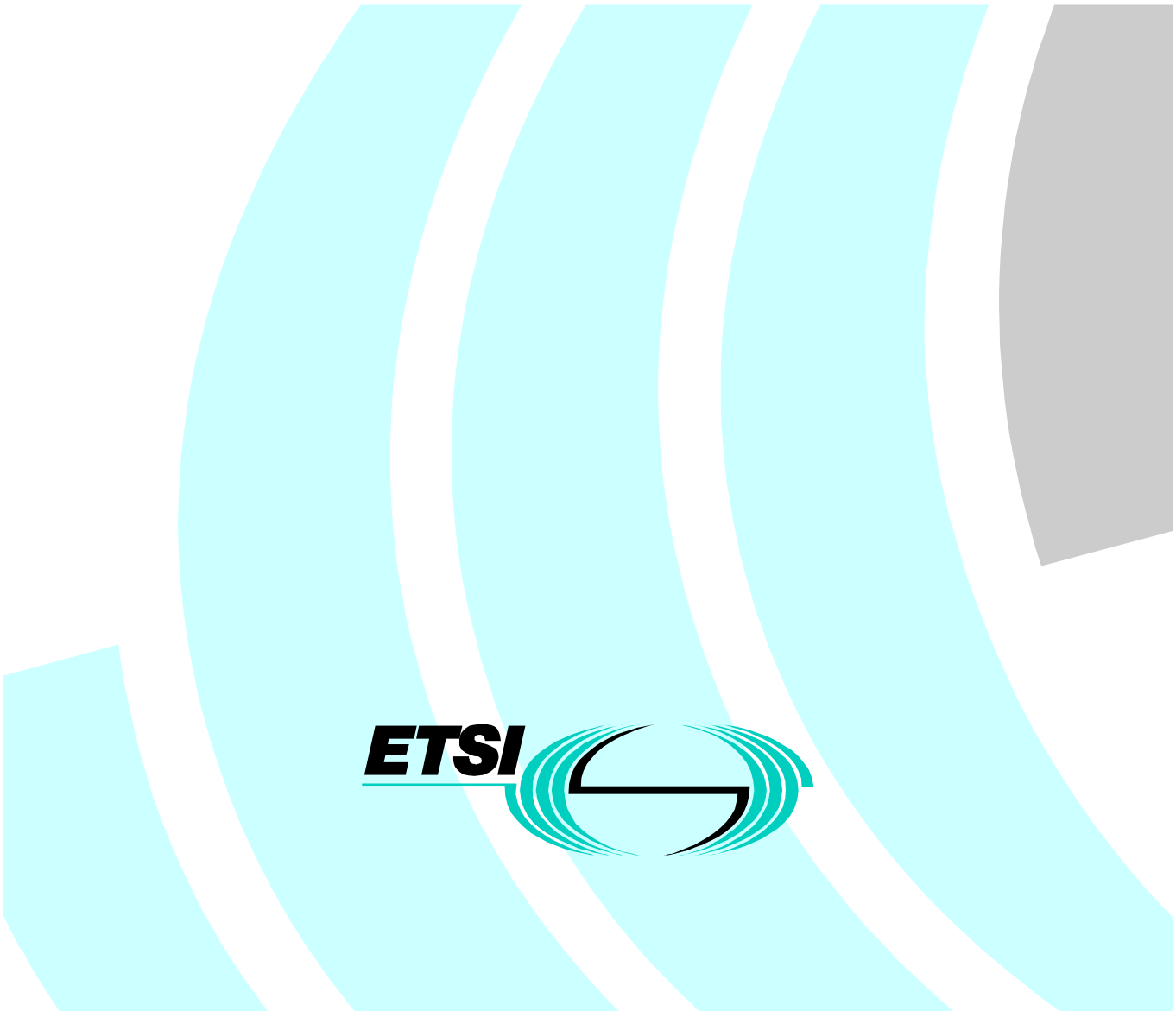
Draft EN 301 372-1 V2.0.1 (1998-09)

European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN); Signalling System No.7; Support of CTM applications; Part 1: Protocol specification



Reference
DEN/SPS-01046-1 (cpc9100o.PDF)

Keywords
CTM, ISDN, SS7, network, TCAP, ISUP,

ETSI

Postal address
F-06921 Sophia Antipolis Cedex - FRANCE

Office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - 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

Internet
secretariat@etsi.fr
http://www.etsi.fr
http://www.etsi.org

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 SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available **free of charge** from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.fr/ipr or http://www.etsi.org/ipr).

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 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 Signalling Protocols and Switching (SPS), and is now submitted for the Public Enquiry phase of the ETSI standards Two-step Approval Procedure.

The present document is part 1 of a multi-part standard covering the Signalling System No.7 and support of CTM applications for the Integrated Services Digital Network (ISDN), as identified below:

Part 1: "Protocol specification".

Further parts are for further study.

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 specifies the extensions required for the support of CTM applications over the public network node interface (NNI) for the case where the CTM-functionality is not provided locally but is to be provided by some remote entity. This application makes use of the Application Transport Mechanism (APM) described in EN 301 069-1 [3] for bearer related signalling, and the Transaction Capability (TC) for signalling involving no bearer. The present document describes the respective users (i.e. APM-user, TC-user) to support CTM applications.

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] EN 301 175: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".

[2] EN 301 144-1 (V1.2): "Integrated Services Digital Network (ISDN); Signalling application for the alpha interface of Cordless Terminal Mobility (CTM); basic call and mobility management; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[3] EN 301 069-1 (V1.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP); Application transport mechanism; Part 1: Protocol specification [ITU-T Recommendation Q.765 modified]".

[4] ITU-T Recommendation Q.711 (07/96): "Functional description of the Signalling Connection Control Part".
ITU-T Recommendation Q.712 (07/96): "Definition and function of signalling connection control part messages".
ITU-T Recommendation Q.713 (07/96): "Signalling Connection Control Part formats and codes".
ITU-T Recommendation Q.714 (07/96): "Signalling connection control part procedures"Signalling connection control part (SCCP)".

[5] ITU-T Recommendation Q.771 (06/97): "Functional description of transaction capabilities".
ITU-T Recommendation Q.772 (06/97): "Transaction capabilities information element definitions".
ITU-T Recommendation Q.773 (06/97): "Transaction capabilities formats and encoding".
ITU-T Recommendation Q.774 (06/97): "Transaction capabilities procedures".
ITU-T Recommendation Q.775 (06/97): "Guidelines for using transaction capabilities".

[6] ITU-T Recommendation X.680 (1994): "Corrigendum 1 (11/95) to Recommendation X.680 - Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation - Technical Corrigendum 1".
ITU-T Recommendation X.681 (07/94): "Information Technology - Abstract Syntax Notation One (ASN.1): Information object specification".
ITU-T Recommendation X.682 (07/94): "Information technology - Abstract Syntax Notation One (ASN.1): Constraint specification".
ITU-T Recommendation X.683 (07/94): "Information technology - Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications".

[7] ITU-T Recommendation Q.1400 (1993): "Architecture framework for the development of signalling and OA&M protocols using OSI concepts".

[8] EN 300 356-1 (V3.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1997), modified]".

[9] EG 201 096-1: "Intelligent Network (IN); Cordless Terminal Mobility (CTM); IN architecture and functionality for the support of CTM; Part 1: CTM phase 1 for single public network case".

3 Definitions and abbreviations

3.1 Definitions

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

CUSP: An exchange where a CUSF is located.

Incoming call: A call to a CTM-user.

Outgoing call: A call from a CTM-user.

3.2 Abbreviations

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

ACID	Application Context Identifier
AEI	Application Entity Invocation
ALS	Application Layer Structure
AP	Application Process
APM	Application Transport Mechanism
APP	Application Transport Parameter
ASE	Application Service Element
ATII	Application Transport Instruction Indicator
BR	Bearer Related
COBU	Connection Oriented Bearer Unrelated
CTM	Cordless Terminal Mobility
CUSF	Call Unrelated Service Function
CUSP	Call Unrelated Service Point
DLE	Destination Local Exchange
FP	Fixed Part
GFT	Generic Functional Transport
GT	Global Title
INAP	Intelligent Network Application Protocol
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
LE	Local Exchange
MACF	Multiple Association Control Function
MSC	Mobile Switching Centre
NI	Network Interface
NNI	Network Node Interface
OLE	Originating Local Exchange
OSI	Open Systems Interconnection
PAN	Public Addressed Node
PIN	Public Initiating Node
SAO	Single Association Object
SCCP	Signalling Connection Control Part
SCP	Service Control Point

SSF	Service Switching Function
SSP	Service Switching Point
SS7	Signalling System No.7
TC	Transaction Capabilities
TE	Transit Exchange
UCEH	Unidentified Context and Error Handling
UCH	Unidentified Context Handling

4 Specification structure

4.1 Introduction

The present document uses OSI ALS specification techniques described in ITU-T Recommendation Q.1400 [7].

The description of the procedures in the present document is structured according to figure 1.

The description is thus devided into two main parts:

- Protocol functions;
- Non-protocol functions, i.e. exchange nodal functions; this is referred to as the "Application Process".

The present document describes only the part of the total Application Process and protocol functions in the exchange that relates to NNI enhancements for the support of CTM applications.

The service description (stage one) is contained in [1], the DSS1 description is contained in [2]. The functional architecture and procedure is contained in [9].

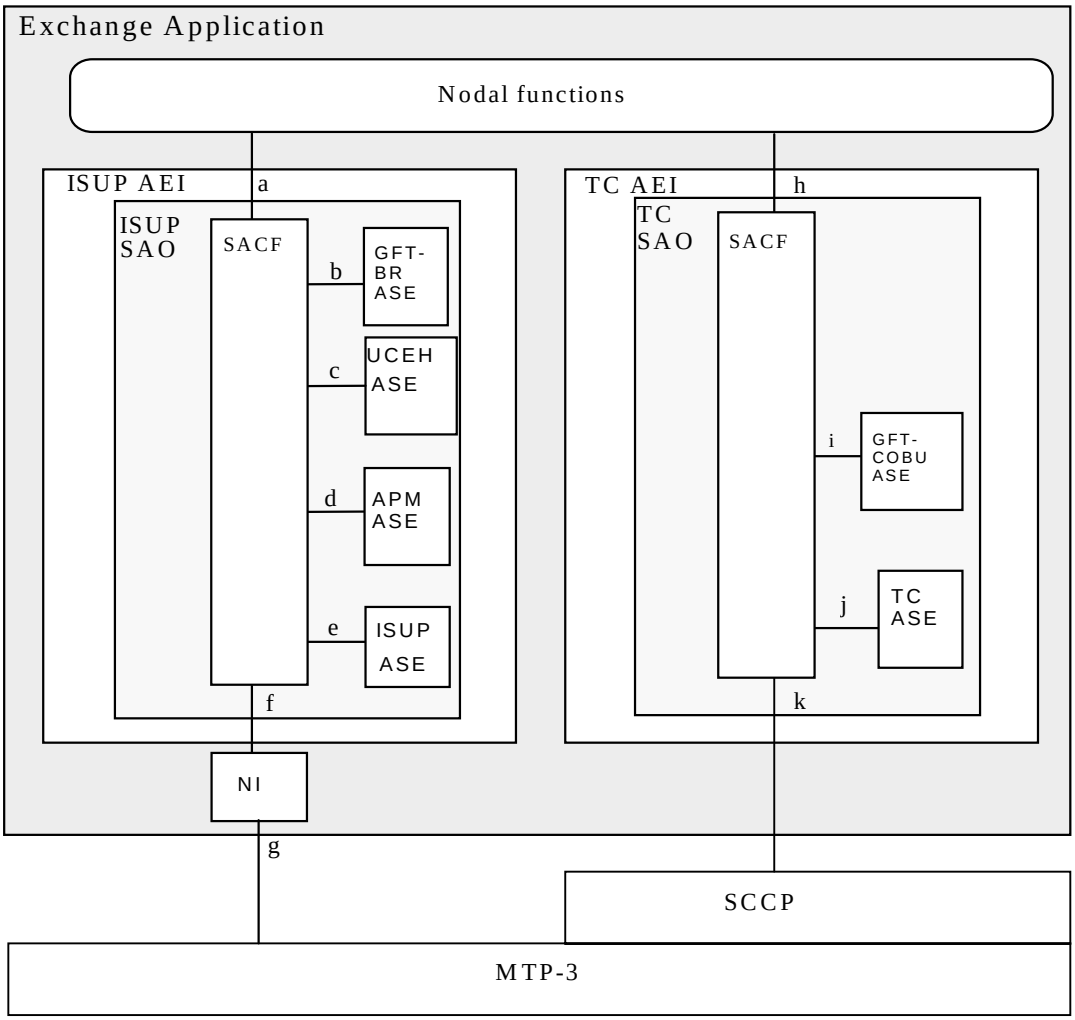


Figure 1: ISUP and Connection Oriented signalling specification model

The term "Exchange Application Process" is used to describe all the application functionality in an exchange. ISUP is a part of the Exchange Application Process. Thus the ISUP Nodal functions shown on the model are refered to as the ISUP Application Process functions in the body of the present document. Similarly, the bearer unrelated Transaction Capability Nodal functions shown on the model are refered to as the TC Application Process functions in the body of the present document.

The ISUP AEI / TC AEI provides all the communication capabilities required by the ISUP/TC Nodal functions. For simplicity an ISUP AEI / TC AEI is defined as containing just one SAO; this avoids the need to specify a Multiple Association Control Function (MACF). Thus all co-ordination of ISUP signalling associations are performed via the ISUP Nodal functions. Similarly, the co-ordination of the TC signalling associations are performed via the TC Nodal functions.

4.2 Protocol functions

a) The protocol functions are subdivided into two areas:

- signalling association with a bearer (using ISUP);
- signalling association without a bearer (connection oriented TC-user).

For calls with a bearer, the use of the services provided by the APM [3] is described. For signalling requiring no bearer, the use of the services provided by TC [5] is described.

b) The signalling association with a bearer is subdivided into four parts:

- bearer related CTM application (GFT-BR ASE);
- unidentified context and error handling (UCEH ASE);
- Application Transport Mechanism (APM ASE);
- ISUP Basic Call (ISUP ASE).

These are co-ordinated by the Single Association Control Function (ISUP SACF).

The GFT-BR ASE is a user of the services offered by the APM ASE. It is responsible for preparing the CTM related signalling information in a form that can be transported by the public Application Transport Mechanism (APM).

The APM ASE is specified in [3]. It provides the means for the transfer of information between nodes for signalling requiring a bearer, and to provide generic services to applications, while being independent of any of these.

The UCEH ASE is specified in [3]. It provides a compatibility mechanism for the case where various levels of application (context) support exists within network nodes as well as APM re-assembly error handling.

The ISUP ASE is defined in [8]. It is not the intention of the present document to re-define [8] in ALS format. This separation of the procedural description provides a logical and convenient document structure but does not imply that the ISUP protocol itself is separated: e.g. in the context of the present document, the Initial Address message always signifies the simultaneous set-up of a bearer and an associated call.

c) The connection oriented signalling association without a bearer is subdivided in two parts:

- bearer unrelated CTM application (GFT-COBU ASE);
- Transaction Capability (TC ASE).

These are co-ordinated by the Single Association Control Function (TC SACF).

The GFT-COBU ASE is a user of the services offered by the TC ASE. It is responsible for preparing the CTM related signalling information in a form that can be passed to the TC for transportation.

The TC ASE is defined in [5]. It provides the means for the transfer of information between nodes for signalling without a bearer, and provides generic services to applications, while being independent of any of these.

4.3 Service primitives

The service primitive technique, used to define the ASEs and the SACF specific to the application's signalling needs, is a way of describing how the services offered by an ASE, or SACF, - the provider of (a set) of service(s) - can be accessed by the user of the service(s) - the SACF or the Application Process, respectively.

The SACF has the responsibility of co-ordinating the flow of primitives between its interfaces in the appropriate manner.

The service primitive interface is a conceptual one and is not a testable or accessible interface. It is a descriptive tool. The use of service primitives at an interface does not imply any particular implementation of that interface, nor does it imply that an implementation must conform to that particular service primitive interface to provide the stated service. All conformance to the ISUP specifications is based on the external behaviour at a node, i.e. on the generation of the correct message structure (as specified in [8]), operation structure (as specified in the present document) and in the proper sequence (as specified in [8] and the present document).

The definition of the interfaces a to k in figure 1 are:

a) Interface between the Application Process nodal functions (AP) and the (ISUP) SACF for the support of CTM bearer related applications: see subclause 6.3.

b) Interface to GFT-BR ASE which defines the protocol control procedures and the formats and codes in the APP (see [3] and [8]) for the support of CTM bearer related applications: see subclauses 7.2, 9.2.

c) Interface between (ISUP) SACF and UCEH ASE representing the handling of unidentified context identifier values and error cases associated with the Application Transport Mechanism. This interface is outside the scope of the present document, see [3].

d) Interface between (ISUP) SACF and APM ASE representing enhancements of the public ISUP functionality for providing a transport mechanism for the support of various applications (APM-user) over the NNI. This interface is outside the scope of the present document, see [3].

e) Interface to public ISUP basic call signalling ASE. This interface is outside the scope of the present document, see [3].

f) Interface between (ISUP) SACF and NI function. This interface is outside the scope of the present document, see [3].

g) Interface to MTP-3. This interface is outside the scope of the present document, see [3].

h) Interface between AP and (TC) SACF: see subclause 6.3.

i) Interface between (TC) SACF and GFT-COBU ASE which performs the function of the protocol control for bearer unrelated connection oriented signalling: see subclauses 8.2, 10.2.

j) Interface between (TC) SACF and TC ASE which provides the services defined in [5]: see clause 11.

k) Interface between (TC) SACF and SCCP which provides the services defined in [4]: see clause 12.

5 Network model

5.1 Bearer-related case

In figure 2, the network model for a call from a CTM-user for the bearer-related case is shown.

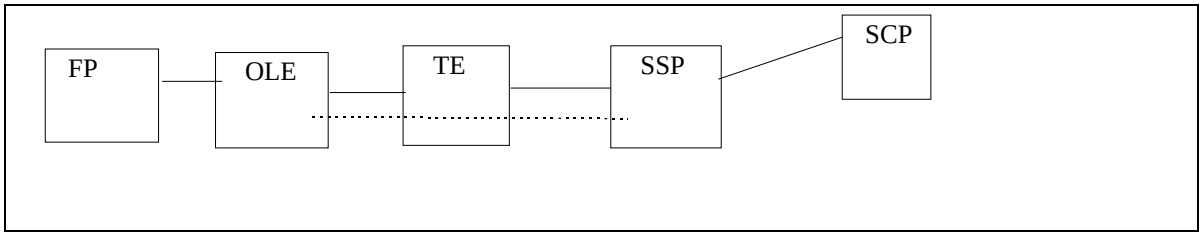


Figure 2

In figure 3, the network model for a call to a CTM-user for the bearer-related case is shown.

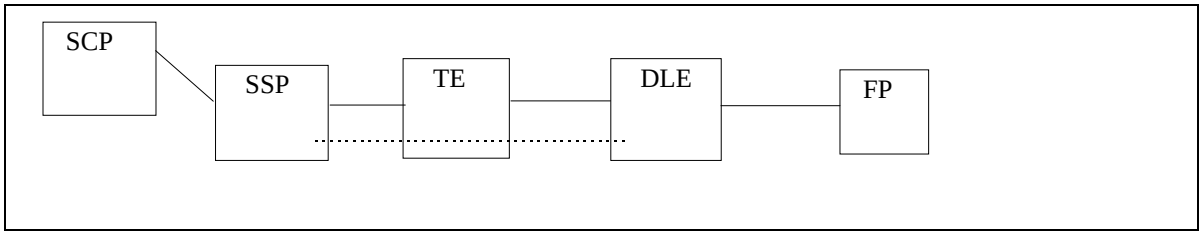


Figure 3

5.2 Bearer-unrelated case

In figure 4, the network model for a call from a CTM-user for the bearer-unrelated case is shown.

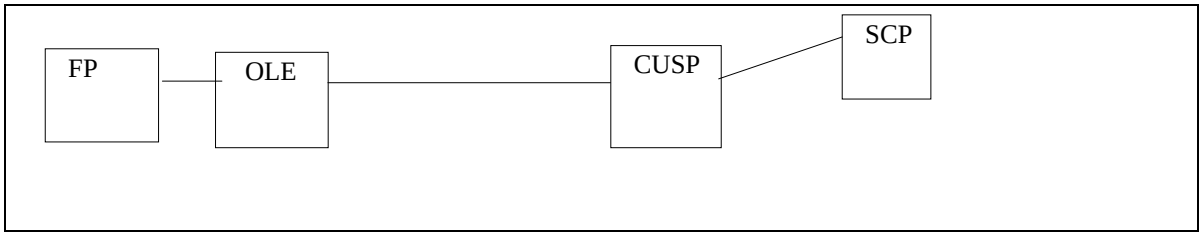


Figure 4

In figure 5, the network model for a call to a CTM-user for the bearer-unrelated case is shown.

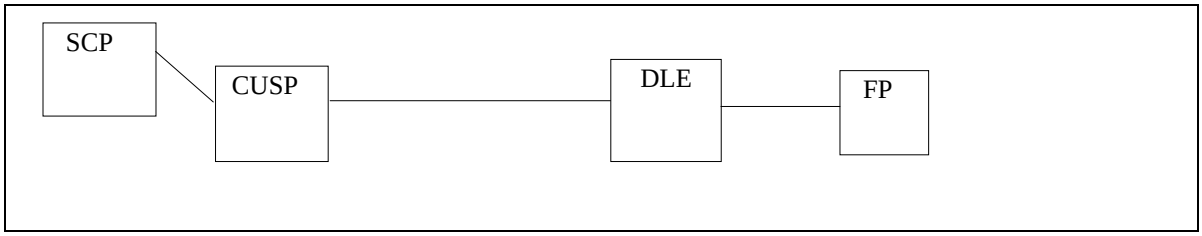


Figure 5

6 Application process functions

6.1 Bearer-related case

6.1.1 Outgoing call

6.1.1.1 Procedures at the PIN

The PIN is typically the OLE.

The information received from DSS1 shall be analysed. A decision shall be made as to whether the CTM-functionality is provided locally or is to be provided at some remote entity.

The Network Facility Extension APDU is analysed for this purpose. Within DSS1 it forms part of the Facility information element.

If the CTM-functionality is not provided locally but is to be provided at some remote entity, the AP shall provide the E.164 number of the PAN and the contents of the appropriate Network Facility Extension APDU and Service Components APDU.

The standard basic call procedures apply (these are outside the scope of the present document), e.g. sending of the Initial Address message (with called party number of the PAN) and afterwards sending of Subsequent Address messages (transferring the dialled number; according to [2], the number of the requested destination party is not contained in the SETUP message but is sent later in overlap sending).

The AP shall issue a CTM_Data request primitive to the ISUP SACF with the contents of the appropriate Network Facility Extension APDU and of the Service Components APDU, and of the Application Transport Instruction Indicator (ATII).

According to [3], the Application Transport Instruction Indicators (ATII) have to be provided. They shall be set according to the needs of the application, i.e. "do not release call / release call" and "do not send notification / send notification". If the requested functionality is essential to the call, then the ATII shall be set to "release call". If actions are required to be performed to gracefully handle the case that the communication is not successful but the call is to continue, then a notification shall be requested. If there is no real need to indicate an unsuccessful communication, then no actions need to be requested in the ATII.

6.1.1.2 Procedures at the PAN

The PAN is typically an SSP on transit level.

The AP receives a CTM_Data indication primitive from the ISUP SACF with the contents of the Network Facility Extension APDU and of the Service Components APDU concerned.

A decision shall be made as to whether the CTM-functionality is provided locally.

The Network Facility Extension APDU is analysed for this purpose. Within DSS1 it forms part of the Facility information element.

If the CTM-functionality is not provided locally but is to be provided at some remote entity, the AP shall provide the E.164 number of the subsequent PAN and the contents of the appropriate Network Facility Extension APDU and Service Components APDU.

If the CTM-functionality is provided locally, interworking to SSF takes place, i.e. CTM-specific information is given to the SSF. This means that the Service Components APDU of the Facility information element is given to SSF which is responsible for the transfer of the Service Components APDU by INAP to the SCP.

6.1.2 Incoming call

6.1.2.1 Procedures at the PIN

The PIN is typically an SSP on transit level.

The AP shall provide the E.164 number of the fixed part (provided via INAP) and the contents of the appropriate Network Facility Extension APDU and the Service Components APDU.

The standard basic call procedures apply (these are outside the scope of the present document), e.g. sending of the Initial Address message (with called party number of the fixed part).

The AP shall issue a CTM_Data request primitive to the ISUP SACF with the contents of the appropriate Network Facility Extension APDU and of the Service Components APDU and of the Application Transport Instruction Indicator (ATII).

According to [3], the Application Transport Instruction Indicators (ATII) have to be provided. They shall be set according to the needs of the application, i.e. "do not release call / release call" and "do not send notification / send notification". If the requested functionality is essential to the call, then the ATII shall be set to "release call". If actions are required to be performed to gracefully handle the case that the communication is not successful but the call is to continue, then a notification shall be requested. If there is no real need to indicate an unsuccessful communication, then no actions need to be requested in the ATII.

6.1.2.2 Procedures at the PAN

The PAN is typically the DLE.

The AP receives a CTM_Data indication primitive from the ISUP SACF with the contents of the Network Facility Extension APDU and Service Components APDU concerned.

The Network Facility Extension APDU is analysed. Within DSS1 it forms part of the Facility information element.

The standard basic call procedures apply (these are outside the scope of the present document), e.g. sending of the DSS1 SETUP message (with called party number of the fixed part).

The contents of the Network Facility Extension APDU and Service Components APDU is sent to DSS1 within a Facility information element.

6.2 Bearer-unrelated case

6.2.1 Procedures at the PIN

A PIN may typically be a CUSP on transit level, or an LE.

a) PIN = CUSP (PAN = LE):

On receipt of the INAP InitiateAssociation operation, the AP issues a CTM_Setup request primitive with the contents of the Network Facility Extension APDU and Service Components APDU and FP-address. The AP shall provide the E.164 number of the PAN which is based on the address of the FP provided by the SCP via INAP.

On receipt of the CTM_Facility indication primitive, the AP gives the contents of the Service Components APDU to the CUSF which is responsible to transfer this information via INAP to the SCP (ReportUTSI).

On receipt of the INAP SendSTUI operation, the AP issues a CTM_Facility request primitive with the contents of the Network Facility Extension APDU and Service Components APDU.

On receipt of the INAP ReleaseAssociation operation, the AP issues a CTM_Release request primitive.

b) PIN = LE (PAN = CUSP):

The information received from DSS1 is to be analysed. A decision shall be made as to whether the CTM-functionality is provided locally.

The Network Facility Extension APDU is analysed for this purpose. Within DSS1 it forms part of the Facility information element.

If the CTM-functionality is not provided locally but is to be provided at some remote entity, the AP shall provide the E.164 number of the PAN.

On receipt of the DSS1 SETUP message, the AP shall issue a CTM_Setup request primitive to the TC SACF with the contents of the appropriateNetwork Facility Extension APDU, Service Component APDU, and Calling Party Number (FP-address).

On receipt of a DSS1 FACILITY message, the AP issues a CTM_Facility request primitive with the contents of the Network Facility Extension APDU and Service Component APDU.

On receipt of a CTM_Facility indication primitive, the contents of the Network Facility Extension APDU, Service Component APDU is given to DSS1.

On receipt of the CTM_Release indication primitive, DSS1 is informed.

6.2.2 Procedures at the PAN

A PAN may typically be a CUSP on transit level, or an LE.

a) PAN = CUSP

On receipt of the CTM_Setup indication primitive, a decision shall be made as to whether the CTM-functionality is provided locally.

The Network Facility Extension APDU is analysed for this purpose. Within DSS1 it forms part of the Facility information element.

If the CTM-functionality is not provided locally but is to be provided at some remote entity, the AP shall provide the E.164 number of the subsequent PAN and the contents of the appropriate Network Facility Extension APDU.

If the CTM-functionality is provided locally, interworking to CUSF takes place, i.e. CTM-specific information is given to CUSF. This means that the Service Components APDU of the Facility information element is given to CUSF which is responsible for the transfer of the Service Components APDU by INAP to the SCP (InitialAssociation).

On receipt of the CTM_Facility indication primitive, the AP gives the contents of the Service Components APDU to the CUSF which is responsible to transfer this information via INAP to the SCP (ReportUTSI).

On receipt of the INAP SendSTUI operation, the AP issues a CTM_Facility request primitive with the contents of the Network Facility Extension APDU and Service Components APDU.

On receipt of the INAP ReleaseAssociation operation, the AP issues a CTM_Release request primitive.

b) PAN = LE

On receipt of a CTM_Setup indication primitive, the contents of the Network Facility Extension APDU, Service Component APDU and Called Party Number (FP-address) is given to DSS1.

The standard basic call procedures apply (these are outside the scope of the present document), e.g. sending of the DSS1 SETUP message (with called party number of the fixed part).

On receipt of a DSS1 FACILITY message, the AP issues a CTM_Facility request primitive with the contents of the Network Facility Extension APDU and Service Component APDU.

On receipt of a CTM_Facility indication primitive, the contents of the Network Facility Extension APDU, Service Component APDU is given to DSS1.

On receipt of the CTM_Release indication primitive, DSS1 is informed.

6.3 Primitive interface

The CTM-related functions in the AP use the services provided by the ISUP-SACF and TC-SACF primitive interface. These are listed in table 1 and table 2.

Table 1: Primitives between AP and ISUP-SACF (interface a in figure 1)

Primitive Name	Types	Contents
CTM_Data	Request (from AP to SACF)	Contents of appropriate Network Facility Extension APDU, Service Components APDU, ATII
	Indication (from SACF to AP)	Contents of appropriate Network Facility Extension APDU, Service Components APDU, ATII

Table 2: Primitives between AP and TC-SACF (interface h in figure 1)

Primitive Name	Contents
CTM_Setup (request/indication)	Contents of Network Facility Extension APDU, Service Components APDU, Called Party Number, Calling Party Number
CTM_Facility (request/indication)	Contents of Network Facility Extension APDU, Service Components APDU
CTM_Release	Cause

7 Single Association Control Function - ISUP SACF

7.1 Introduction

The main objective of the ISUP-SACF is to receive and deliver primitives from and to the appropriate entity and to perform the distribution function where appropriate for the ISUP AEI. The ISUP-SACF described here only defines the mapping and functions related to the support of CTM applications aspect of the model.

On receipt of a primitive from the AP, the ISUP SACF issues appropriate primitives to the ASEs. The SACF also performs a distribution of the primitives from the ASEs prior to sending the resulting primitive to NI.

The primitives on the interface between SACF and AP are defined in subclause 6.3.

The primitives on the interface between SACF and GFT-BR ASE are defined in subclause 9.2.

The primitives on the interface between SACF and Unidentified Context Handling (UCH) ASE can be found in [3] and are therefore beyond of the scope of the present document.

The primitives on the interface between SACF and APM ASE can be found in [3] and are therefore beyond the scope of the present document.

The primitives on the interface between SACF and ISUP ASE can be found in [3] and are therefore beyond the scope of the present document.

The primitives on the interface between SACF and NI can be found in [3] and are therefore beyond the scope of the present document.

7.2 Information flow

7.2.1 Information flow related to operations sent by the node

Table 3: Mapping of primitives from AP towards GFT-BR ASE

From AP (interface a in figure 1)	To GFT-BR ASE (interface b in figure 1)
CTM_Data	CTM_Data

Table 4: Mapping of primitives from GFT-BR ASE towards APM ASE

From GFT-BR ASE (interface b in figure 1)	To APM ASE (interface d in figure 1)
APM_U_Data	APM_Data

7.2.2 Information flow related to operations received by the node

Table 5: Mapping of primitives from APM ASE towards GFT-BR ASE

From APM ASE (interface d in figure 1)	To GFT-BR ASE (interface b in figure 1)
APM_Data	APM_U_Data

Table 6: Mapping of primitives from GFT-BR ASE towards AP

From GFT-BR ASE (interface b in figure 1)	To AP (interface a in figure 1)
CTM_Data	CTM_Data

8 Single Association Control Function - TC SACF

8.1 Introduction

The main objective of the TC-SACF is to receive and deliver primitives from and to the appropriate entity and to perform the distribution function where appropriate for the TC AEI. The TC-SACF described here only defines the mapping and functions related to the support of CTM applications aspect of the model.

On receipt of a primitive from the AP, the TC SACF issues appropriate primitives to the ASEs. The SACF also performs a distribution of the primitives from the ASEs prior to sending the resulting primitive to SCCP.

The primitives on the interface between SACF and AP are defined in subclause 6.3.

The primitives on the interface between SACF and GFT-COBU ASE are defined in subclause 10.2.

The primitives on the interface between SACF and TC are listed in [5].

The primitives on the interface between SACF and SCCP are listed in [4].

8.2 Information flow

8.2.1 Information flow related to operations sent by the node

Table 7: Mapping of primitives from AP towards GFT-COBU ASE

From AP (interface h in figure 1)	To GFT-COBU ASE (interface i in figure 1)
CTM_Setup	CTM_Setup
CTM_Facility	CTM_Facility
CTM_Release	CTM_Release

8.2.2 Information flow related to operations received by the node

Table 8: Mapping of primitives from GFT-COBU ASE towards AP

From GFT-COBU ASE (interface i in figure 1)	To AP (interface h in figure 1)
CTM_Setup	CTM_Setup
CTM_Facility	CTM_Facility
CTM_Release	CTM_Release

9 GFT bearer related ASE

9.1 Introduction

The GFT-BR ASE is a user of the services offered by the APM ASE. It is responsible for the signalling aspects for the CTM bearer-related applications and for preparing the CTM related information in a form that can be transported by the Application Transport Mechanism.

9.2 Primitive interface

Table 9: Primitives between ISUP SACF and GFT-BR ASE (interface b in figure 1)

Primitive Name	Types
APM_U_Data	Request (from GFT-BR ASE) / Indication (to GFT-BR ASE)
CTM_Data	Request (to GFT-BR ASE) / Indication (from GFT-BR ASE)

9.3 Signalling procedures

9.3.1 Sending procedures at the PIN

On receipt of the CTM_Data request primitive, the contents are prepared in the appropriate format (see clause 13) (finally to be transferred as "encapsulated application information").

The Application Context ID shall be set to "GFT-control" (value 4).

The result is issued to the ISUP SACF in the APM_U_Data request primitive.

9.3.2 Receiving procedures at the PAN

On receipt of the APM_U_Data indication primitive, the contents are checked for correct format and coding (see clause 13). If the check is successful, the received information is sent to the ISUP SACF in the CTM_Data indication primitive.

9.3.3 Signalling congestion

See Q.764, ISUP Signalling Congestion.

9.3.4 Primitive contents

a) The APM_U_Data indication and request primitive contains the following information:

- Application Context Identifier;
- Application Transport Instruction Indicators;
- application data (see clause 13).

b) The contents of the CTM_Data indication and request primitive are defined in subclause 6.3.

10 GFT connection oriented bearer unrelated ASE

10.1 Introduction

The GFT-COBU ASE is a user of the services offered by the TC ASE. It is responsible for the signalling aspects for the CTM bearer-unrelated applications and for preparing the CTM related information in a form that can be transported by TC.

10.2 Primitive interface

Table 10: Primitives between TC SACF and GFT-COBU ASE (interface i in figure 1)

Primitive Name	Type, operation
CTM_Setup	Request/Indication CtmSetup.Invoke (class 4)
CTM_Facility	Request/Indication CtmFacility.Invoke (class 4)
CTM_Release	Request/Indication CtmRelease.Invoke (class 4)

10.3 Primitive contents

The primitive contents are described in subclause 6.3.

10.4 GFT-COBU ASE procedures

On receipt of a request primitive, the information is prepared according to the operation definition and TC primitive interface requirements. The coding of the application data is specified in clause 13.

On receipt of an indication primitive, the information is encoded and sent to the AP. The coding of the application data is specified in clause 13.

10.5 ASN.1 module

The following ASN.1 module specifies the protocol elements defined for the GFT COBU ASE. It shows the definitions of the operations and types for the connection oriented bearer unrelated signalling for the support of CTM related information flows using ASN.1 as defined by [6].

```
GFT COBU - Protocol {itu-t(0)  identified organisation  etsi(0)  1372  version1(1)}
DEFINITIONS IMPLICIT TAGS ::= BEGIN
EXPORTS CtmSetup, CtmFacility, CtmRelease, GftArg;
IMPORTS OPERATION, ERROR
        FROM TCAPMessages {itu-t  recommendation  q  773  modules(2)  messages(1)  version1(1)};
--### Operation Types
--CtmSetup (class 4)
CtmSetup::=     OPERATION
            ARGUMENT
                GftArg
--CtmFacility (class 4)
CtmFacility::=      OPERATION
            ARGUMENT
                GftArg
--CtmRelease (class 4)
CtmRelease::=       OPERATION
            ARGUMENT
                GftArg
--### Argument Data
GftArg::=   OCTET STRING
--  Indicates the DSS1 Facility information element. Refer to EN 301 144-1 [2] for encoding (note:
--  [2] contains a reference to EN 301 061-1). The Facility information element identifier and the
```

```
--  length indicator shall be included (i.e. the complete Facility information element).
--### Object Identifier Path
gftcobuOID  OBJECT IDENTIFIER::=
            {itu-t  identified organisation  etsi  1372  version1(1)}
--### Operation Values
ctmSetup    CtmSetup    ::= globalValue {gftcobuOID ctmsetup    (1)}
ctmFacility CtmFacility ::= globalValue {gftcobuOID ctmfacility (2)}
ctmRelease  CtmRelease  ::= globalValue {gftcobuOID ctmrelease  (3)}
END
-- of GFT COBU Protocol
```

11 TC ASE

The TC-SACF uses the services provided by the TC primitive interface. TC and the primitive interface between TC-SACF and TC are defined in [5].

This CTM-application uses TC for structured dialogues.

12 SCCP

The TC-SACF uses the services provided by the SCCP primitive interface. SCCP and the primitive interface between TC-SACF and SCCP are defined in [4].

The Subsystem Number value of "0000 1011 (ISDN supplementary services)" is used.

SCCP class 1 service (sequenced connectionless service) is used.

The SCCP message return option is used.

As a minimum, the 1992 version of SCCP should be used; but version 1996/1997 is preferred.

For routeing on the international interface and for routeing based on the Global Title translation mechanism within national networks, the coding of the SCCP called party address and SCCP calling party address shall comply with the following restrictions:

SSN indicator	1	SSN for ISDN supplementary services is always included
GT indicator	0100	includes translation type numbering plan encoding scheme and nature of address
Translation type	0001 0001	translation table
Numbering plan	0001	ISDN/Telephony Numbering Plan E.164
Routing indicator	0	Routeing on global title

The exchange which initiates a dialogue using the GT translation mechanism shall give an E.164 address as GT in the SCCP calling address field which will uniquely identify it. For routeing on the international interface, the number information used for GT translation shall comply to the E.164 numbering schemes for country code and national destination code.

13 Formats and Codes of Application Data

The application data are coded according to [2] (e.g. Facility information element, Network Facility Extension APDU, Service Components APDU).

Bibliography

The following material, though not specifically referenced in the body of the present document, gives supporting information.

- TCR-TR 013 (1993): "Network Aspects (NA); Network Support of PT Mobility".

History

Document history				
V2.0.1	September 1998	Public Enquiry	PE 9903:	1998-09-18 to 1999-01-15