



# SLOVENSKI STANDARD

## SIST-TP ETSI/ETR 186-2 E1:2005

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**Intelligentno omrežje (IN) - Medsebojno vplivanje med aplikacijskim protokolom inteligentnega omrežja (INAP) in signalizacijskimi protokoli digitalnega omrežja z integriranimi storitvami (ISDN) - 2. del: Komutacijske signalizacijske zahteve za podporo storitvam nabora zmoglosti 2 (CS2) inteligentnega omrežja (IN) v okolju ozkopasovnega digitalnega omrežja z integriranimi storitvami (N-ISDN)**

Intelligent Network (IN); Interaction between IN Application Protocol (INAP) and Integrated Services Digital Network (ISDN) signalling protocols; Part 2: Switching signalling requirements for IN Capability Set 2 (CS2) service support in a Narrowband ISDN (N-ISDN) environment

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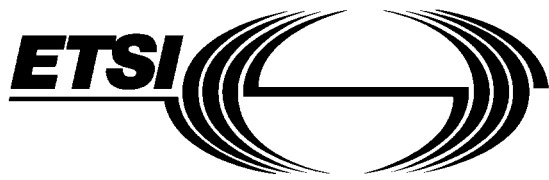
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**ETSI**

European Telecommunications Standards Institute

**ETSI Secretariat**

**Postal address:** F-06921 Sophia Antipolis CEDEX - FRANCE

**Office address:** 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

**Internet:** secretariat@etsi.fr - <http://www.etsi.fr> - <http://www.etsi.org>

Tel.: +33 4 92 94 42 00 - Fax: +33 4 93 65 47 16

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## Foreword

This ETSI Technical Report (ETR) has been produced by the Signalling Protocols and Switching (SPS), Technical Committee of the European Telecommunications Standards Institute (ETSI).

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

This ETR is part 2 of a multi-part ETR covering the interactions between the Intelligent Network Application Protocol (INAP) and Integrated Services Digital Network (ISDN) signalling protocols as described below:

Part 1: "Switching signalling requirements for IN Capability Set 1 (CS1) service support in a Narrowband ISDN (N-ISDN) environment";

**Part 2: "Switching signalling requirements for IN Capability Set 2 (CS2) service support in a Narrowband ISDN (N-ISDN) environment".**

NOTE: Additional parts may cover further development in the IN area.

The standardization works in the fields of ISDN and IN have progressed as parallel, independent activities. Hence no consideration has been given to the provision of IN based services in an ISDN environment. The present document seeks to give guidance and clarification to the signalling requirements needed to fully support IN Capability Set 2 (CS2) services in a Narrowband ISDN (N-ISDN) environment.

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## 1 Scope

This second part of ETR 186 specifies the signalling requirements for the interaction between Intelligent Network (IN) Capability Set 2 (CS2) services and ISUP/DSS1 switched based services in an N-ISDN environment. It is based on the capabilities supported by the ETSI core Intelligent Network Application Protocol (INAP) for CS2, EN 301 140-1 [2].

The aspects of private networks in this are limited to show the indirect ISDN TE access to the public network. In particular the aspect where the private network has access to the SCF of an IN-structured network via an Intelligent Access Function (IAF) is out of scope of this ETR.

## 2 References

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

- [1] ETS 300 710: "Integrated Services Digital Network (ISDN); Public Switched Telephone Network (PSTN); Universal Access Number (UAN) service; Service description".
- [2] EN 301 140-1: "Intelligent Network (IN); Intelligent Network Application Protocol (INAP); Capability Set 2 (CS2); Part 1: Protocol specification".
- [3] EN 301 144-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 protocols; Signalling application for the mobility management service on the alpha interface; Part 1: Protocol Specification".
- [4] ETS 300 779: "Network Aspects (NA); Universal Personal Telecommunication (UPT); Phase 1; Service description".
- [5] EN 301 175: "Cordless Terminal Mobility (CTM); Phase 1; Service Description".
- [6] EN 301 070-1: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 interactions with the Intelligent Network Application Part (INAP); Part 1: Protocol specification [ITU-T Recommendation Q.1600 (1997), modified]".
- [7] ETR 164: "Integrated Services Digital Network (ISDN); Intelligent Network (IN); Interaction between IN Application Protocol (INAP) and ISDN User Part (ISUP) version 2".
- [8] ETS 300 374-1 (1994): "Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1); Core Intelligent Network Application Protocol (INAP); Part 1: Protocol specification".
- [9] ETS 300 710: "Integrated Services Digital Network (ISDN); Public Switched Telephone Network (PSTN); Universal Access Number (UAN) service; Service description".
- [10] ETS 300 712: "Integrated Services Digital Network (ISDN); Public Switched Telephone Network (PSTN); Premium Rate (PRM) service; Service description".
- [11] ETS 300 779: "Network Aspects (NA); Universal Personal Telecommunication (UPT); Phase 1 - Service description".
- [12] ETS 300 823: "Universal Personal Telecommunication (UPT); UPT phase 2; Functional specification of the interface of a UPT Integrated Circuit Card (ICC) and Public Switched Telephone Network (PSTN), Integrated Services Digital Network (ISDN) and Global System for Mobile communications (GSM) terminals (one pass and multiple pass authentication)".
- [13] ITU-T Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".

- [14] ITU-T Recommendation Q.735: "Stage 3 description for community of interest supplementary services using Signalling System No. 7".
- [15] ITU-T Recommendation Q.763: "Signalling System No. 7 – ISDN User Part formats and codes".
- [16] ITU-T Recommendation Q.1224 (1997): "Distributed Functional Plane for IN CS2".
- [17] ITU-T Recommendation Q.1228: "Interface Recommendation for Intelligent Network Capability Set 2".
- [18] ITU-T Recommendation Q.1290 (1994): "Glossary of terms used in the definition of Intelligent Networks".
- [19] 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 Abbreviations and definition

#### 3.1 Abbreviations

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

ANM	Answer Message (ISUP message)
ASE	Application Service Element
BCSM	Basic Call State Model
BCUSM	Basic Call Unrelated State Model
BRI	Basic Rate Interface
CCBS	Completion of Calls to Busy Subscriber
CCC	Charge Card Calling
CCF	Call Control Function
CCNR	Completion of Calls on No Reply
CD	Call Distribution
CdINNo	Called IN number
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLR	COConnected Line identification Restriction
CPH	Call Party Handling
CS1	IN Capability Set 1
CS2	IN Capability Set 2
CTM	Cordless Terminal Mobility
CUG	Closed User Group
CUSF	Call Unrelated Service Function
CURUI	Call Unrelated User Interaction
DP	Detection Point
DTMF	Dual Tone Multi-Frequency
DSS1	Digital Subscriber Signalling System No. one
EDP	Event Detection Points
FT	Fixed Termination
GUG	GVNS User Group
GVNS	Global Virtual Network Service
HLR	Home Location Register
IAF	Intelligent Access Function
IN	Intelligent Network
INAP	Intelligent Network Application Protocol
IP	Intelligent Peripheral
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
LE	Local Exchange
MCID	Malicious Call Identification
MSC	Mobile Switching Centre

NNI	Node to Node Interface
OCCRUI	Out Channel Call Related User Interaction
OPSP	Originating Participating Service Provider
PIN	Personal Identification Number
PINX	Private Integrated Network Exchange
PRI	Primary Rate Interface
PRM	Premium Rate
PSTN	Public Switched Telephone Network
PUI	Personal User Identity
QUE	Queuing
REL	Release Message (ISUP message)
ROSE	Remote Operations Service Element
SCF	Service Control Function
SCP	Service Control Point
SRF	Specialized Resource Function
SSF	Service Switching Function
SSP	Service Switching Point
SUI	Service to User Information.
TDP	Trigger Detection Points
TE	Terminal Equipment
TNRN	Terminating Network Routing Number
UAN	Universal Access Number
UPT	Universal Personal Telecommunication
UNI	User to Network Interface
USBS	User Signalling Bearer Service
USI	User to Service Information
VLR	Visited Location Register

### 3.2 Definition iTeh STANDARD PREVIEW

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For the purposes of the present document, terminology is defined in ITU-T Recommendation I.112 [13] and ITU-T Recommendation Q.1290 [18].

### 4 General <https://standards.itih.ai/catalog/standards/sist/3af772be-2a2c-4de2-87d2-986d27300a4a/sist-tp-etsi-etr-186-2-e1-2005>

The signalling requirements specified in the present document are related to the following subjects:

- communication between an Integrated Services Digital Network (ISDN) end-user and an Intelligent Network (IN) service;
- support of mid-call events;
- interworking with ISDN supplementary services;
- support of service/feature interaction handling IN-based to IN-based;
- requirements from Cordless Terminal Mobility (CTM);
- transport of display information;
- transport of called IN number;
- requirements from Call Party Handling (CPH);
- support of Global Virtual Network Service (GVNS) configuration #3;
- support of calling user number;
- support of Detection Point (DP): Not\_Reachable.

### 5 Communication between an ISDN end-user and IN service logic

The execution of an IN service or an IN service feature may require a communication between an ISDN end-user and the IN service logic. This communication may include transfer of information from the terminal of an ISDN end-user to the service logic as well as the provision of information to the ISDN end-user.

It is, as a general mechanism in the IN architecture, possible to send tones and announcements to an end-user and to receive additional information in-band, using Dual Tone Multi-Frequency (DTMF) signalling or speech, from an end-user. This user interaction phase is usually provided by an Intelligent Peripheral (IP). The user interaction phase with an IP is controlled by the IN service logic. The functional entity in the IP is named Specialized Resource Function (SRF) which is controlled by the Service Control

Function (SCF). In-band collected information is transferred via the Intelligent Network Application Protocol (INAP) to the SCF.

IN Capability Set 1 (CS1) only supports in-band user interaction as described above. With IN Capability Set 2 (CS2) it will be possible to support a User to Service Information (USI) communication mechanism by using the out-of-band signalling capabilities supported in the ISDN. This mechanism will provide an information transport between end-user and IN service logic which is transparent in the ISDN network. The user terminal (ISDN Terminal Equipment (TE)) and the IN service logic run an end-to-end application protocol on top of the basic network transport mechanism. This end-to-end application protocol is service feature specific. For example, remote operation procedures Remote Operations Service Element (ROSE) may be used.

## 5.1 Signalling configurations

The interaction with an ISDN user should not put any requirements on the network architecture; e.g. it should not be a requirement to equip the local exchanges with Service Switching Function (SSF) or SRF. As a consequence the signalling needs to support the following possible configurations for the access of an ISDN TE to the IN entities in the network:

- Case A: The ISDN TE is connected direct to a local exchange with an SSF;
- Case B: The ISDN TE is connected to a local exchange without an SSF;
- Case C: The ISDN TE is connected to a private network (indirect TE access to the public network);
- Case D: The ISDN TE is within a VPN.

In case A only the Digital Subscriber Signalling System No. one (DSS1) protocol may be affected by the requirements to support a USI communication. In case B the ISDN User Part (ISUP) may also be affected.

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In case C the SSF functionality may also be located at the local exchange (as case A).

Case D is just an example signalling configuration for VPN; there are other possible permutations for the allocation of VPN functionality but these options are not discussed here.

As an example, figures 1a and 1b illustrate these signalling configurations for one of the SRF connect physical scenarios described in ETS 300 374-1 [8], subclause 7.3.5.1.1, case i) in figure 25.

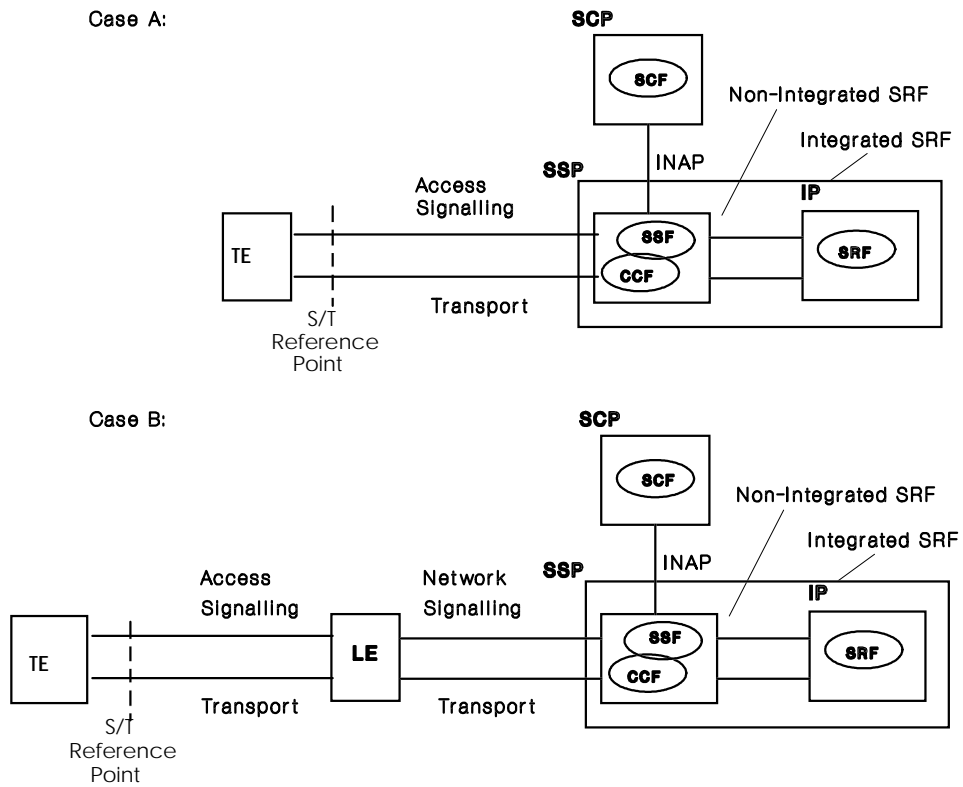


Figure 1a: Signalling configurations, Cases A and B  
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