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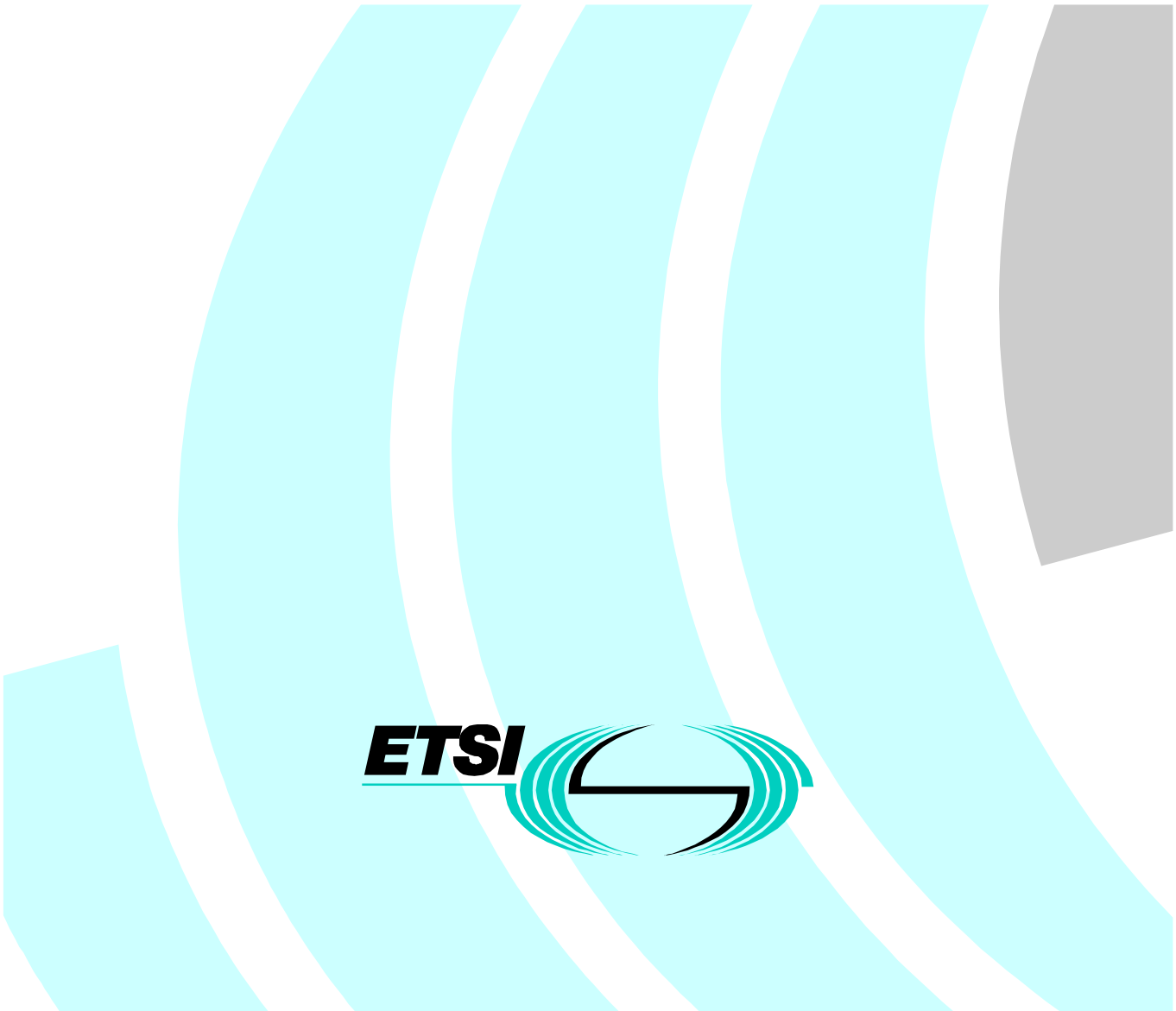
European Standard (Telecommunications series)

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]



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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS), and is now submitted for the Voting phase of the ETSI standards Two-step Approval Procedure.

The present document is part 1 of a multi-part EN covering the interactions between ISDN User Part (ISUP) version 3 and Intelligent Network Application Part (INAP) in the scope of IN Capability Set 1 (CS1), as identified below:

Part 1: "Protocol specification [ITU-T Recommendation Q.1600 (1997), modified]";

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification";

Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

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

Endorsement notice

The elements of ITU-T Recommendation Q.1600 (1997) apply, with the following modifications.

NOTE: New or modified text is indicated using sidebars. In addition, underlining and/or strike-out are used to highlight detailed modifications where necessary.

Modifications to ITU-T Recommendation Q.1600

Insert the following clause (Scope) at the start of the document:

1 Sope

The present document specifies the interaction between the ISUP and INAP.

The interaction between other signalling systems and INAP can be found by consulting the relevant interworking recommendation to the ISUP in combination with the ISUP/INAP interaction recommendation.

The present document specifies procedures in order to provide interaction between ISUP and INAP, i.e. to support IN services in an ISDN environment. In addition new protocol elements for the ISUP are defined in order to satisfy IN specific requirements. Based on the protocol inherent compatibility mechanism a stepwise upgrade of the ISUP functionality is possible. However, the new function is only available for an IN call, if supported in any of the affected exchanges.

The present document only considers the case where the SSP is located at a transit level. As a consequence this could lead to limitations for ISDN supplementary services.

The present document does not specify enhancements to the DSS1 protocol, which may be needed due to additional ISUP functions or IN requirements, respectively.

The main subjects of this interaction specification are the following:

- description of specific call control functions for IN calls;
- impacts on the ISUP basic call and the ISDN supplementary services for IN calls;
- enhancement of the ISUP protocol due to IN specific requirements.

0.2 references

Replace the clause "0.2 references" with the following clause (References):

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, subsequent revisions do apply.
- 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] ETR 318 (1996): "Intelligent Network (IN); IN Capability Set 1 (CS1); Distributed functional plane".

[2] EN 300 356-1: "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]".

[3] EN 300 356-3: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 3: Calling Line Identification Presentation (CLIP) supplementary service [ITU-T Recommendation Q.731, clause 3 (1993), modified]".

[4] EN 300 356-4: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 4: Calling Line Identification Restriction (CLIR) supplementary service [ITU-T Recommendation Q.731, clause 4 (1993), modified]".

[5] EN 300 356-5: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 5: Connected Line Identification Presentation (COLP) supplementary service [ITU-T Recommendation Q.731, clause 5 (1993), modified]".

[6] EN 300 356-6: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 6: Connected Line Identification Restriction (COLR) supplementary service [ITU-T Recommendation Q.731, clause 6 (1993), modified]".

[7] EN 300 356-10: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 10: Subaddressing (SUB) supplementary service [ITU-T Recommendation Q.731, clause 8 (1992), modified]".

[8] EN 300 356-11: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 11: Malicious Call Identification (MCID) supplementary service [ITU-T Recommendation Q.731, clause 7 (1997), modified]".

[9] EN 300 356-14: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 14: Explicit Call Transfer (ECT) supplementary service [ITU-T Recommendation Q.732, clause 7 (1996), modified]".

[10] EN 300 356-15: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 15: Diversion supplementary services [ITU-T Recommendation Q.732, clauses 2 to 5 (1997), modified]".

[11] ETS 300 374-1 (1994): "Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1); Core Intelligent Network Application Protocol (INAP); Part 1: Protocol specification".

[12] EN 300 403-1: "Integrated Services Digital Network (ISDN);Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

Throughout the text of ITU-T Recommendation Q.1600

Replace references as shown below:

Reference in ITU-T Recommendation Q.1600	Modified reference
ITU-T Recommendation Q.1214	ITU-T Recommendation Q.1214 as modified by ETR 318 [1]
ITU-T Recommendation Q.1218	ETS 300 374-1 [11]
ITU-T Recommendation Q.731	ITU-T Recommendation Q.731 as modified by EN 300 356, parts 3, 4, 5, 6, 10 and 11 [3 to 8]
ITU-T Recommendation Q.732	ITU-T Recommendation Q.732 as modified by EN 300 356, parts 14 and 15 [9 and 10]
ITU-T Recommendation Q.763	ITU-T Recommendation Q.763 as modified by EN 300 356-1 [2]
ITU-T Recommendation Q.764	ITU-T Recommendation Q.764 as modified by EN 300 356-1 [2]
ITU-T Recommendation Q.931	ITU-T Recommendation Q.931 as modified by EN 300 403-1 [12]

Table 2

Amend the table as shown:

Operation	Influence on ISUP call handling	Reference
⋮	⋮	⋮
~~AnalyseInformation~~	~~For further study (Note)~~	
⋮	⋮	⋮
~~CancelStatusReportRequest~~	~~For further study (Note)~~	
⋮	⋮	⋮
~~HoldCallInNetwork~~	~~For further study (Note)~~	
⋮	⋮	⋮
~~RequestCurrentStatusReport~~	~~For further study (Note)~~	
~~RequestEveryStatusChangeReport~~	~~For further study (Note)~~	
~~RequestFirstStatusMatchReport~~	~~For further study (Note)~~	
⋮	⋮	⋮
~~SelectFacility~~	~~For further study (Note)~~	
~~SelectRoute~~	~~For further study (Note)~~	
⋮	⋮	⋮

Subclause 7.2.6, Correlation id parameter

Replace references to "[5], §2.1.3 Definition of Common Data Types" and "[5], §2.1.3 Definition of range constants" with "[11], §6.3".

Subclause 7.2.8, SCF id parameter

Replace references to "[5], §2.1.3 Definition of Common Data Types" and "[5], §2.1.3 Definition of range constants" with "[11], §6.3".

Subclause 9.1.1, Successful call set-up

Modify the first sentence as follows:

If an IAM is received in a SSP and the call is recognized as IN call, i.e. by detecting a DP as TDP-R (see subclause 9.3 Detection Point processing), an InitialDP operation ~~or a DP specific operation for a TDP-R~~ is sent from the SSF to the SCF. If the IAM had been segmented the remainder of the call set-up information is awaited (see subclause 9.1.1.7 Simple segmentation). The mapping of parameters is shown in the table 4.

Table 4

Amend the table as shown:

ISUP message **IAM** (Note 1)	INAP operation **InitialDP**
⋮	⋮
~~Calling party subaddress IE contained in access transport~~	~~callingPartySubaddress~~
⋮	⋮

Table 5

Amend the table as shown:

INAP operation **Connect** (Note 1)	ISUP message **IAM**
⋮	⋮
callingPartyNumber	*(Note 4)* (see also annex ZA)
⋮	⋮
~~isdnAccessRelated Information~~	~~*Not mapped. (Note 5)*~~
⋮	⋮

Table 5, note 3

Replace reference to "[5], §3.3.16" with "[11], §9.11".

Table 5, note 5

Delete the entire note.

Subclause 9.1.2, Normal call release

Replace reference to "[5], §3.1.1.5" with "[11], §7.1.5".

Subclause 9.1.3, Suspend, resume

Modify the first paragraph as follows:

Upon receipt of a SUS message with the indication "network initiated" the timer T_{SUS} is started to ensure that a RES message with the indication "network initiated" or a REL message is received. In the case that at least one DP monitor mode is set to 'interrupted', ~~T~~the received SUS message is not passed on. If the timer T_{SUS} expires, the procedures described in [10] Q.764/§ 2.4.3 apply. The value of timer T_{SUS} depends on the time limits received in serviceInteractionIndicators parameter.

Subclause 9.2, IN call with SCP request to collect further digits

Modify the first two paragraphs as follows:

After sending the InitialDP operation to the SCP a RequestReportBCSMEvent operation to arm DP2 accompanied by a CollectInformation operation may be received from the SCP (see~~[5] §~~3.3.15 [11] §9.10). In this case the specified number of digits will be collected in the SSP. Encountering DP2, i.e. the specified number of digits has been received, will result in sending an EventReportBCSM operation ~~or a CollectedInformation operation, respectively,~~ to the SCP.

In addition to subclause 9.1.5 the digits sent to the SCP in the EventReportBCSM operation ~~or the CollectedInformation operation~~ shall be taken into account when constructing the called IN number parameter.

Subclause 9.3.1, General

Modify the second and third paragraph as follows:

In the "notifyAndContinue" mode the event is reported as EDP-N (notification mode) in the EventReportBCSM operation ~~or a DP specific operation, respectively~~, to the SCF and normal call processing continues as described in subclause 9.1 (IN basic call).

In the "interrupted" mode the event is reported as EDP-R (request mode) in the EventReportBCSM operation ~~or a DP specific operation, respectively,~~ and the SSF will wait for instructions from the SCF.

Table 7

Amend the table, and add note as shown:

DP	DP encountered on ...
2	See subclause 9.2 (IN call with SCP request to collect further digits).
4	National network specific.
5, 13	Receipt of a REL message with cause value #17 (user busy). (Note)
6, 14	Expiry of timer $T_{NoReply}$.
7, 15	Receipt of an ANM or CON message.
9, 17	a) Receipt of a REL message with cause value #16 (normal call clearing) in the active phase of a call. (Note) b) Expiry of timer T_{SUS}.
10, 18	Receipt of a REL message with cause value #16 (normal call clearing) from a preceding exchange before the call is answered. (Note)

NOTE: These are examples of correspondence between cause values and DPs. The network operator shall have the possibility to define the complete mapping between cause values and DPs. It should be noted that any operator defined mapping may contradict those defined in future IN Capability Sets.

Subclause 9.3.1.3, Release message

Replace reference to "[5], §3.1.1.5" with "[11], §7.1.5".

Subclause 9.4, Set-up of an IN call to destination B

Modify the first paragraph as follows:

This section describes the set-up of an IN call to destination B after an user interactive dialogue has been performed or after the SSF has reported an EDP-R in the EventReportBCSM operation ~~or a DP specific operation, respectively,~~ to the SCF. In these situations the call set-up differs from the normal call set-up for the "IN basic call".

Subclause 9.5, User interactive dialogue (in-band)

Modify the first paragraph as follows:

If in response to the InitialDP operation, the EventReportBCSM operation ~~or a DP specific operation~~, a ConnectToResource or EstablishTemporaryConnection operation is received (...)

Subclause 9.6, Call gapping

Replace reference to "[5], §7.3.6" with "[11], §9.6".

Subclause 9.7, Service filtering

Replace reference to "[5], §7.3.1" with "[11], §9.1".

Table 12

Modify the table as follows:

ISDN Supplementary service	ISUP protocol possibly impacted by IN services	if impacted by IN service(s) the following action will be performed	Affected exchange
Completion of calls to busy subscribers	Yes	See subclause 11.3.1(Completion of calls to busy subscriber)	SSP
Completion of calls on no reply	Yes	See subclause 11.3.2 (Completion of calls on no reply)	SSP
~~International telecommunication charge card~~	~~No~~		
~~Multilevel precedence and preemption~~	~~No~~		
~~Reverse charging~~	~~Yes~~	~~National network specific~~	

Subclause 11.3, Completion of calls to busy subscriber

Modify the subclauses as shown:

11.3 Completion of calls services ~~to busy subscribers~~

11.3.1 Completion of calls to busy subscribers

11.3.1.1 Actions in the service switching point

If "reject call completion request" was received in the INAP serviceInteractionIndicator parameter (call completion treatment indicator), then in a received REL message a "CCBS possible" in the diagnostics field of the cause indicators is replaced with "CCBS not possible".

11.3.2 Completion of calls on no reply

11.3.2.1 Actions in the service switching point

If "reject call completion request" was received in the INAP serviceInteractionIndicator parameter (call completion treatment indicator), then in a received ACM (subscriber free) message or CPG (alerting) message a "CCNR possible" in the CCNR Possible indicator parameter is replaced with "CCNR not possible".

Appendix I

Appendix I has the status of an integral part of the present document.

Appendix II

Appendix II has the status of an informative annex, describing a network option.

Appendix III

Appendix III has the status of an informative annex.

Annex ZA (informative): Mapping of the INAP callingPartyNumber parameter

ZA.1 Introduction

This annex describes an additional feature that may be provided by some public ISDNs as a national option.

This additional feature shall place no requirement on the provision and operation of existing services (e.g. MCID, CLIP, etc.) supported in ISDNs that do not support this additional feature. Other network operators possibly involved in a call shall be informed that this feature may be applied, this may be done with a bi-lateral agreement.

NOTE: In future versions, an alternative method of performing this interaction may be defined.

As a national option, the INAP callingPartyNumber parameter gives the SCF the ability to modify the outgoing ISUP signalling's:

- Calling Party Number parameter; or
- Generic Number (Additional Calling Party Number).

The ISUP parameter modified is dependent on the value of the callingPartyNumber parameter's Screening Indicator received in the INAP Connect operation.

ZA.2 Screening Indicator = "network provided" or "user provided, verified and passed"

Where the Screening Indicator received in the INAP callingPartyNumber parameter is either "network provided" or "user provided, verified and passed", the calling Party Number parameter is mapped to the Calling Party Number parameter in the outgoing ISUP signalling. Any Generic Number (Additional calling party number) parameter received from the incoming ISUP shall not transited through to the outgoing ISUP.

Thus these values of the INAP Screening Indicator of the callingPartyNumber may be used to:

- change a calling user provided number where the special arrangement does not apply at the originating exchange; or
- to provide a calling party number on behalf of the calling user.

Where the CLIP supplementary service applies at the destination user, and no restriction applies, the number is presented to the destination user. This value will also override the number recorded in all subsequent networks as the source of the call (e.g. for MCID purposes), and identifies the number as being partially provided by the user.

ZA.3 Screening Indicator = "user provided, not verified" or "user provided, verified and failed"

If the Screening Indicator received in the incoming ISUP Calling Party Number parameter is "Network Provided", then where the Screening Indicator received in the INAP callingPartyNumber parameter is "user provided, not verified" or "user provided, verified and failed", the callingPartyNumber parameter is mapped directly to the Generic Number parameter (Additional Calling Party Number).

Thus these values of the INAP Screening Indicator of the callingPartyNumber may be used to:

- change a calling user provided number where the special arrangement applies at the originating exchange.

Where the CLIP supplementary service applies at the destination user, and no restriction applies, the number is presented to the destination user.

History

Document history				
V1.1.1	November 1997	Public Enquiry	PE 9813:	1997-11-28 to 1998-03-27
V1.2.1	June 1998	Vote	V 9836:	1998-06-29 to 1998-09-11