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Part 1: Protocol specification**

[ITU-T Recommendation Q.2957.1 (1995), modified]

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## Foreword

This final draft European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Voting phase of the ETSI standards approval procedure.

This ETS is part 1 of a multi-part standard covering the Digital Subscriber Signalling System No. two (DSS2) protocol specification for the Broadband Integrated Services Digital Network (B-ISDN) User-to-User Signalling (UUS) supplementary service, as described below:

- Part 1:** "Protocol specification";
- Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";
- Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification for the user";
- Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user";
- Part 5: "TSS&TP specification for the network";
- Part 6: "ATS and partial PIXIT proforma specification for the network".

NOTE: The final structure of the parts containing the test specifications is currently under study.

In accordance with CCITT Recommendation I.130, the following three level structure is used to describe the supplementary telecommunication services as provided by European public telecommunications operators under the pan-European B-ISDN:

- Stage 1: is an overall service description, from the user's standpoint;
- Stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and
- Stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

This ETS details the stage 3 aspects (signalling system protocols and switching functions) needed to support the UUS supplementary service. The stage 1 and stage 2 aspects of the equivalent N-ISDN supplementary service are detailed in ETS 300 284 and ETS 300 285 respectively, and these have been assumed to be appropriate to be the foundation for the equivalent B-ISDN supplementary service specifications.

<b>Proposed transposition dates</b>	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

## Endorsement notice

The text of ITU-T Recommendation Q.2957.1 (1995) is proposed by ETSI as an ETS with agreed modifications as given below.

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

### subclause 1.1

Replace subclause 1.1 by:

#### 1.1 Scope

This first part of ETS 300 668 specifies the stage three of the User-to-User Signalling (UUS) supplementary service for the pan-European Broadband Integrated Services Digital Network (B-ISDN) as provided by European public telecommunications operators at the  $T_B$  reference point or coincident  $S_B$  and  $T_B$  reference point (as defined in ITU-T Recommendation I.413 [1]) by means of the Digital Subscriber Signalling System No. two (DSS2) protocol. Stage three identifies the protocol and procedures and switching functions needed to support a telecommunication service (see ITU-T Recommendation I.130 [2]).

In addition, this ETS specifies the protocol requirements at the  $T_B$  reference point where the service is provided to the user via a private B-ISDN.

This ETS does not specify the additional protocol requirements where the service is provided to the user via a telecommunications network that is not a B-ISDN.

The UUS supplementary service enables a user to send/receive a limited amount of information to/from another user over the signalling virtual channel in association with a call to the other user.

The UUS supplementary service is applicable to all telecommunication services.

Further parts of this ETS specify the method of testing required to identify conformance to this ETS.

This ETS is applicable to equipment, supporting the UUS supplementary service, to be attached at either side of a  $T_B$  reference point or coincident  $S_B$  and  $T_B$  reference point when used as an access to the public B-ISDN.

#### subclause 1.2, first paragraph

Replace the first paragraph of subclause 1.2 by:

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

**subclause 1.2**

Insert the following references at the end of subclause 1.2:

The following references should be added:

- [8] ETS 300 443-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for basic call/bearer control; Part 1: Protocol specification [ITU-T Recommendation Q.2931 (1995), modified]".
- [9] ETS 300 669-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Supplementary service interactions; Part 1: Protocol specification".

**Throughout the text of ITU-T Recommendation Q.2957.1**

Replace references as shown in the following table.

Reference in ITU-T Recommendation Q.2957.1	Modified reference
ITU-T Recommendation Q.2931 [3]	ITU-T Recommendation Q.2931 as modified by ETS 300 443-1 [8]

**subclause 1.3**

Delete the definitions of "called user", "calling user" and "served user", and the insert the following definitions at the end of subclause 1.3:

**call control message:** A message as defined in ETS 300 443-1 [8] subclause 3.1 or subclause 3.2, which on sending or receipt causes a change of the call state at either the network or the user. Call control messages also include the PROGRESS message but not the INFORMATION message.

NOTE: For the purposes of other standards, the INFORMATION message may be considered as a call control message.

**called network:** The network to which the called user is attached.

**called user:** A user that receives a call request which may include a request of the UUS supplementary service.

**calling network:** The network to which the calling user is attached.

**calling user:** A user that initiates a call and may include a request of the UUS supplementary service in the call request.

**implicit request:** An implicit request of a UUS supplementary service is one where the request is implicitly identified by including a User-user information element in the SETUP message sent by the served user.

**implicit service 1:** Service 1 implicitly requested.

**preferred request:** A preferred request of a UUS supplementary service is one where the call setup shall continue even if the request for the UUS supplementary service cannot be accepted.

**premature clearing:** The calling or called user initiates call clearing before the call has reached the Active (N10, U10) call state.

**served user:** The user who is the requester of the UUS supplementary service.

**service 1:** A form of the UUS supplementary service where UUI can be sent and received as part of call control messages for originating and terminating calls.

**User-To-User Information (UUI):** The information transferred between users in the User-user information element by the UUS supplementary service.

**subclause 1.6.1**

Insert the after the first paragraph:

The UUS service 1 shall be withdrawn by the service provider upon request of the served user or for administrative reasons.

**subclause 1.6.2**

Insert before the first paragraph:

The originating network shall be able to receive UUI from the user and convey it towards the destination network; and to receive UUI from the destination network and convey it to the user.

**subclause 1.6.3**

Insert before the first paragraph:

The destination network shall be able to receive UUI from the user and convey it towards the originating network; and to receive UUI from the originating network and convey it to the user.

**subclause 1.6.4**

Delete subclause 1.6.4.

**tables 1-1/Q.2957, 1-2/Q.2957, 1-3/Q.2957 and 1-4/Q.2957**

Replace note 1 by:

NOTE 1: May be included if implicit service 1 has previously been activated.

**subclause 1.8.3, third paragraph and figure 1-1/Q.2957**

Replace the third paragraph and figure 1-1/Q.2957 by:

The coding for the User-user information element is shown in figure 1-1 and table 1-7.

Bits							Octet
8	7	6	5	4	3	2	1
User-user							
0	1	1	1	1	1	1	0
Information element identifier							1
1 Ext		Coding standard		IE instruction field			
		Flag	Res.	Action ind.			2
Length of user-user contents							3
							4
Protocol discriminator							5
User information							6 etc.

**Figure 1-1: User-user information element**

Table 1-7: User-user information element

Protocol discriminator (octet 5)	
<b>Bits</b>	
<b>8 7 6 5 4 3 2 1</b>	
0 0 0 0 0 0 0 0	User specific protocol (note 1)
0 0 0 0 0 0 0 1	OSI high layer protocol
0 0 0 0 0 0 1 0	ITU-T Recommendation X.244 (note 2)
0 0 0 0 0 0 1 1	Reserved for system management convergence function
0 0 0 0 0 1 0 0	IA5 characters (note 4)
0 0 0 0 0 1 0 1	X.208/X.209 coded user information (note 5).
0 0 0 0 0 1 1 1	ITU-T Recommendation V.120 rate adaption
0 0 0 0 1 0 0 0	ITU-T Recommendation Q.931 (I.451) user-network call control messages
0 0 0 1 0 0 0 0 } through } 0 0 1 1 1 1 1 1 }	reserved for other network layer or layer 3 protocols, including ITU-T Recommendation X.25 (note 3)
0 1 0 0 0 0 0 0 } through } 0 1 0 0 0 1 1 1 }	national use
0 1 0 0 1 0 0 0 } through } 0 1 0 0 1 1 1 1 }	reserved for ETSI
0 1 0 1 0 0 0 0 } through } 1 1 1 1 1 1 1 0 }	reserved for other network layer or layer 3 protocols, including ITU-T Recommendation X.25 (note 3)
All other values are reserved	
NOTE 1:	The user information is structured according to user needs.
NOTE 2:	The user information is structured according to ITU-T Recommendation X.244 which specifies the structure of ITU-T Recommendation X.25 call user data.
NOTE 3:	These values are reserved to discriminate these protocol discriminators from the first octet of a ITU-T Recommendation X.25 packet including a general format identifier.
NOTE 4:	The user information consists of IA5 characters.
NOTE 5:	The number of X.208/X.209 components contained in a User-user information element, as well as their semantics and use are user-application dependent and may be subject to other ETSS.

**subclause 1.9**

Replace subclause 1.9 and all of its subclauses by:

**1.9 Signalling procedures at the coincident  $S_B$  and  $T_B$  reference point****1.9.1 Activation, deactivation and registration**

Activation is performed using the implicit request procedure of subclause 1.9.1.1.

The implicit service 1 is automatically deactivated when the associated call is cleared.

Registration is not applicable.

## **1.9.1.1 Implicit request procedure**

### **1.9.1.1.1 Normal operation**

To activate service 1 implicitly, the calling user shall include a User-user information element in the SETUP message sent to the calling network as part of normal call request. If the calling network accepts the request, this same User-user information element shall be delivered unchanged in the SETUP message sent by the called network to the called user.

This service is implicitly requested as preferred.

When the request is sent to the called user, the service is activated in the network and at the called user. No acceptance by the called user is given for activating this service.

For activation purposes, the User-user information element shall be at least five octets long as defined in subclause 1.8.3.3. When activating the service, the calling user may include UUI in the User-user information element as part of the service invocation.

### **1.9.1.1.2 Exceptional procedures**

If the calling network for any reason cannot accept the implicit service 1 request received in the SETUP message, the calling network shall discard the received User-user information element without disrupting normal call handling. No UUS supplementary service specific rejection indication shall be sent to the calling user.

If the called user for any reason cannot accept the implicit service 1 request received in the SETUP message, the called user shall discard the received User-user information element without disrupting normal call handling. No UUS supplementary service specific rejection indication shall be given to the called network.

If a SETUP message is received containing a User-user information element of less than five octets in length, the calling network or called user shall treat the SETUP message as if the User-user information element was not present, according to the procedures of ETS 300 443-1 [8].

## **1.9.2 Invocation**

### **1.9.2.1 Invocation during call establishment**

#### **1.9.2.1.1 Normal operation**

To invoke service 1 during call establishment the calling user shall include a User-user information element in the SETUP message sent to the calling network (i.e. at the same time as activating service 1) and this same User-user information element shall be included in the SETUP message sent by the called network to the called user.

The called user may include a User-user information element in the ALERTING and the CONNECT message(s) sent to the calling user through the network.

#### **1.9.2.1.2 Exceptional procedures**

If the network user receives a SETUP message from the calling user including a User-user information element with an overall length exceeding 133 octets, the calling network shall discard the User-user information element; take action on the remaining contents of the message and, as a network option, send a STATUS message to the calling user containing cause #43 "access information discarded".

If the calling user receives an ALERTING or CONNECT message from the calling network including a User-user information element and the service 1 is not activated or the overall length of the User-user information element exceeds 133 octets, the calling user shall discard the User-user information element, take action on the remaining contents of the message received from the calling network and, as a user option, send a STATUS message to the calling network containing cause #43 "access information discarded".

If the called network receives an ALERTING or CONNECT message from the called user including a User-user information element and the service 1 is not activated or the overall length of the User-user information element exceeds 133 octets, the called network shall discard the User-user information element. If discard occurs, the called network shall take action on the remaining contents of the message received from the called user and, as a network option, send a STATUS message to the called user containing cause #43 "access information discarded".

If the called user receives a SETUP message from the called network including a User-user information element with an overall length exceeding 133 octets, the called user shall discard the User-user information element; take action on the remaining contents of the message and, as a user option, send a STATUS message to the called network containing cause #43 "access information discarded".

### **1.9.2.2 Invocation during call clearing**

#### **1.9.2.2.1 Normal operation**

To invoke service 1 during call clearing, either user shall include a User-user information element in the first message used to initiate the normal call clearing phase (see ETS 300 443-1 [8], subclauses 5.4.3 and 5.4.4).

Either network shall transfer the information contained in the User-user information element to the calling user or the called user in the first clearing message sent to that user. Such transfer is only performed if the information is received at the calling network or the called network before sending a clearing message to its user; otherwise, the information is discarded without sending any notification.

##### **a) Clearing initiated by the calling user:**

To invoke service 1, the calling user shall include a User-user information element in the RELEASE message sent to the calling network. This User-user information element shall be included in the RELEASE message sent by the called network to the called user.

##### **b) Clearing initiated by the called user:**

If the call has reached the Active (U10) call state, the called user shall include a User-user information element in the RELEASE message sent to the called network to invoke service 1.

In case of premature clearing, the called user may include a User-user information element in a RELEASE or RELEASE COMPLETE message.

The calling network shall include the User-user information element, if any, in the RELEASE message sent to the calling user.

In case of call clearing failure (see ETS 300 443-1 [8], subclauses 5.4.3 and 5.4.4) where a RELEASE message is not acknowledged and a RELEASE message is retransmitted by the calling or called user or calling or called network, the User-user information element may be repeated in the RELEASE message.

#### **1.9.2.2.2 Exceptional procedures**

The calling or called network shall discard the User-user information element if it is received from either user in a RELEASE or RELEASE COMPLETE message without service 1 being activated, or if the overall length of the User-user information element exceeds 133 octets, take action on the remaining contents of the message received from the user and shall, as a network option, include cause #43 "access information discarded" in the next sequential clearing message sent to the calling or called user. If the user initiating the clearing has sent a RELEASE COMPLETE message, the calling or called network shall consider the call as cleared to that user; no additional action shall be taken.

The calling or called user shall discard the User-user information element if it is received from either network in a RELEASE or RELEASE COMPLETE message without service 1 being activated, or if the overall length of the User-user information element exceeds 133 octets, take action on the remaining contents of the message received from the network and shall, as a user option, include cause #43 "access information discarded" in the next sequential clearing message sent to the calling or called network.



**subclause 1.10**

Replace the complete text of subclause 1.10 by:

The procedures described in subclause 1.9 shall apply with the following exception:

- the exceptional procedures described in subclause 1.9.2.1.2 apply except that the network shall not send STATUS messages to the private network. However, STATUS messages generated as part of basic call may be sent.

**subclause 1.12**

Replace subclause 1.12 and all of its subclauses by:

The interaction of the UUS supplementary service with other supplementary services shall be as specified in ETS 300 669-1 [9].

**appendix I**

Appendix I has the status of an informative annex.

**appendix II**

Appendix II has the status of an informative annex.

## History

Document history			
September 1995	Public Enquiry	PE 92:	1995-09-25 to 1996-01-19
June 1996	Vote	V 106:	1996-06-24 to 1996-08-30