

**Recommendation Q.87****ADDITIONAL INFORMATION TRANSFER SUPPLEMENTARY SERVICES****1 ISDN user-to-user signalling services****1.1** *General*

This Recommendation provides information on the functions in ISDN entities and the information flows between the entities which are required to provide user-to-user signalling services.

The service may be used for unrestricted user signalling information in a packet manner over the D channel at the user-network interface.

**1.2** *Description of service uses***1.1.1** *General description*

The **user-to-user signalling (UUS) supplementary service** allows an ISDN user to send/receive a limited amount of information to/from another ISDN user over the signalling channel in association with a call to the other ISDN user.

*Note* — These procedures are applicable to user-to-user information (UII) transfer in association with a circuit-switched telecommunication service only. Procedures to permit UII transfer in association with other types of calls (e.g. packet bearer services) need to be investigated.

**1.2.2** *Signalling information transfer*

This packet service allows two users (e.g., terminals, PABXs) in a point-to-point configuration, to communicate via the ISDN over the D channel.

Service 1 provides this capability within the basic call signalling messages. Services 2 and 3 allow this capability within additional messages. Service 2 may be sent from SETUP through SETUP confirmation (CONNECT) and Service 3 from SETUP confirmation through DISCONNECT.

**1.2.3** *Service invocation*

Users indicate their intended user of a user-to-user signalling service at the time of call setup by including appropriate information in the service request sent to the network over the user/network signalling channel (D channel) or for Service 1 by including user-to-user information in the SETUP message. If the request is an explicit request at call setup, the user may mark the request essential/not essential. If the request is essential the call will be cleared by the network if any essential user-to-user service cannot be provided. Service 3 may be activated by either the calling or called user during the setup or active phase of the call.

1.3      *Derivation of the functional model for user-to-user signalling*

1.3.1    *Functional model*

**Figure 1-1/Q.87, p.**

FE1 and FE5 are the functional entities that serve the users and are responsible for initiating functional requests and interacting with network: FE2, 3 and 4 are the functional entities within the network that cooperate with their peers to provide the services requested by FE1 and FE5.  $r_1$  and  $r_2$  are relationships between functional entities wherein information flows occur in order to process call attempts or service requests.

#### 1.3.1.1 *Relationship to basic service*

Service 1 is carried across the network as part of Basic Service. Services 2 and 3 allow additional messages to be accepted and processed from specific states in the basic service model. These messages do not alter the state but require an action to take place.

#### 1.3.1.2 *Description of the call control Agent functional entity*

The CCA functional entity supports the functionality to:

- a) access the service-providing capabilities of the CC entities, using service requests to establish, manipulate and release a single call;
- b) receive indications relating to the call from the CC entity and relay them to the user;
- c) maintain call state information as perceived from this functional end-point of the service (i.e., a single-ended view of the call).

#### 1.3.1.3 *Description of the call control (CC) functional entity*

The CC functional entity supports the functionality to:

- a) establish, manipulate and release a single call (upon request of the CCA entity);
- b) associate and relate the CCA entities that are involved in a particular call and/or service;
- c) manage the relationship between the CCA entities involved in a call (i.e., reconcile and maintain the overall perspective of the call and/or service);

### 1.4 *Information flow diagrams*

Information flow diagrams for user-to-user signalling service call setup, service usage and call release are shown in Figures 1-2/Q.87 to 1-10/Q.87.

- Figure 1-2/Q.87 shows a successful use of UUS Service 1 in a point-to-point configuration;
- Figure 1-3/Q.87 shows a successful use of UUS Service 1 in a point-to-multipoint configuration;
- Figure 1-4/Q.87 shows a successful use of UUS Service 2 in a point-to-point configuration;
- Figure 1-5/Q.87 shows an unsuccessful use of UUS Service 2 in a point-to-multipoint configuration;
- Figure 1-6/Q.87 shows a successful use of UUS Service 3 requested and essential;
- Figure 1-7/Q.87 shows a successful use of UUS Service 3 requested and not essential;
- Figure 1-8/Q.87 shows a successful use of UUS Service 3 requested during the active phase;
- Figure 1-9/Q.87 shows a successful use of UUS Service 3 requested during the active phase by the called party;

— Figure 1-10/Q.87 shows a UUS service requested in a point-to-multipoint configuration.

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**Figure 1-2/Q.87, p. 2**

**Figure 1-3/Q.87, p. 3**

**Figure 1-4/Q.87, p. 4**

**Figure 1-5/Q.87, p. 5**



**Figure 1-6/Q.87, p. 6**

**Figure 1-7/Q.87, p. 7**

**Figure 1-8/Q.87, p. 8**

**Figure 1-9/Q.87, p. 9**

**Figure 1-10/Q.87, p. 10**

1.5 *SLD diagrams for functional entities*

1.5.1 *SLDs for FE1 and FE5*

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**Figure 1-30/Q.87, p. 31**

1.6      *Functional entity actions*

1.6.1      *Check UUS service request*

- Check for implicit Service 1 request
- Check for explicit service requests
- Determine any services are essential
- Are services subscribed to?

- Are there sufficient signalling resources?

1.6.2 *Check for UUI to END user*

- UUI requested?
- Any UUI required?
- Is the user an ISDN user?

### 1.6.3 *Check called user response*

- Is user multipoint?
- Can user accept UUI Service 2?
- Are all required services accepted?

### 1.6.4 *Check which services are available to calling user*

- Which services were requested?
- Which services were confirmed by called user?
- Inform calling user of accepted services

### 1.6.5 *Is UUI or UUM transfer allowed?*

- Is there UUI or UUM?
- Is the appropriate service active?
- If UUM is the network congested?

### 1.6.6 *Check limit of Service 2 UUMs*

- Count UUMs
- Reject UUMs over 2 coming from attached user

### 1.6.7 *Can a UUI compatible path be found?*

- Is UUS required?
- If there is no compatible path act appropriately

## 1.7 *Allocation of functional entities to physical location*

The mapping between functional entities of the functional model for the user signalling bearer service and their possible physical locations is given in the matrix shown in Table 1-1/Q.87.

**H.T. [T1.87]**

TABLE 1-1/Q.87

#### **Possible physical location of functional entities**

FE1	FE2	FE3	FE4	FE5	
TE (User terminal equipment)	X				
NT2 (Network termination 2)	X	X			
LE (Local exchange)	X	X	X		
TR (Transit exchange)			X		
LE (Local exchange)			X	X	X
NT2 (Network termination 2)				X	X
TE (User terminal equipment)					X

*Note* — A cross in the matrix indicates a possible allocation of the functional entity on top of the column to the physical location on each line. Different call scenarios can be generated from this matrix.

**Table 1-1/Q.87 [T1.87], p.**

## **2 User signalling bearer services**

Under study.

