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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 (UUI) transfer in association with a circuit-switched telecommunication service only. Procedures to permit UUI 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 requestedby 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 1-3/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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1.5.2 *Stage 2 SDLs for FE2 ‘‘CC functional entity (r*

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1.5.3 *SLDs for functional entity FE3*

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1.5.4 *SDL for functional entity FE4*

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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.

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2 User signalling bearer services

Under study.