INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.82.7
(07/96)

SERIES Q: SWITCHING AND SIGNALLING

Functions and information flows for services in the ISDN –
Supplementary services

Stage 2 description for call offering supplementary
services:

Explicit call transfer

ITU-T Recommendation Q.82.7

(Previously CCITT Recommendation)

ITU-T Q-SERIES RECOMMENDATIONS

SWITCHING AND SIGNALLING

SIGNALLING IN THE INTERNATIONAL MANUAL SERVICE	Q.1–Q.3
INTERNATIONAL AUTOMATIC AND SEMI-AUTOMATIC WORKING	Q.4–Q.59
Basic Recommendations	Q.4–Q.9
Numbering plan and dialling procedures in the international service	Q.10–Q.11
Routing plan for international service	Q.12–Q.19
General Recommendations relative to signalling and switching systems (national or international)	Q.20–Q.34
Tones for use in national signalling systems	Q.35–Q.39
General characteristics for international telephone connections and circuits	Q.40–Q.47
Signalling for satellite systems	Q.48–Q.49
Signalling for circuit multiplication equipment	Q.50–Q.59
FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN	Q.60–Q.99
Methodology	Q.60–Q.67
Basic services	Q.68–Q.79
Supplementary services	**Q.80–Q.99**
CLAUSES APPLICABLE TO ITU-T STANDARD SYSTEMS	Q.100–Q.119
SPECIFICATION OF SIGNALLING SYSTEMS No. 4 AND No. 5	Q.120–Q.249
SPECIFICATIONS OF SIGNALLING SYSTEM No. 6	Q.250–Q.309
SPECIFICATIONS OF SIGNALLING SYSTEM R1	Q.310–Q.399
SPECIFICATIONS OF SIGNALLING SYSTEM R2	Q.400–Q.499
DIGITAL EXCHANGES	Q.500–Q.599
INTERWORKING OF SIGNALLING SYSTEMS	Q.600–Q.699
SPECIFICATIONS OF SIGNALLING SYSTEM No. 7	Q.700–Q.849
DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 1	Q.850–Q.999
PUBLIC LAND MOBILE NETWORK	Q.1000–Q.1099
INTERWORKING WITH SATELLITE MOBILE SYSTEMS	Q.1100–Q.1199
INTELLIGENT NETWORK	Q.1200–Q.1999
BROADBAND ISDN	Q.2000–Q.2999

For further details, please refer to ITU-T List of Recommendations.

ITU-T RECOMMENDATION Q.82.7

STAGE 2 DESCRIPTION FOR CALL OFFERING SUPPLEMENTARY SERVICES: EXPLICIT CALL TRANSFER

Summary

This Recommendation defines the Stage 2 of the Explicit Call Transfer (ECT) supplementary service.

The ECT supplementary service enables a user who has two calls, each of which can be an incoming or an outgoing call, to connect the other users in the two calls.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

CONTENTS

Page

Recommendation Q.82.7

STAGE 2 DESCRIPTION FOR CALL OFFERING SUPPLEMENTARY SERVICES: EXPLICIT CALL TRANSFER

(Geneva, 1996)

1 Scope

This Recommendation defines the Stage 2 of the Explicit Call Transfer (ECT) supplementary service. Stage 2 identifies the functional capabilities and the information flows needed to support the service as described in Stage 1. The Stage 2 description also identifies user operations not directly associated with a call (see Recommendation I.130 [2]).

This Recommendation is specified according to the methodology specified in Recommendation Q.65 [3].

In addition, this Recommendation does not specify the requirements where the service is provided to the user via a private ISDN. This Recommendation does not specify the requirements for the allocation of defined functional entities within a private ISDN, it does however define which functional entities may be allocated to a private ISDN.

This Recommendation does not specify the additional requirements where the service is provided to the user via a telecommunications network that is not an ISDN.

The ECT supplementary service enables a user who has two calls, each of which can be an incoming or an outgoing call, to connect the other users in the two calls.

The ECT supplementary service is applicable to all circuit-switched telecommunication services.

This Recommendation is applicable to the Stage 3 Recommendations for the integrated services digital network.

2 Normative references

The following Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision: all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

[1]   ITU-T Recommendation I.112 (1993), *Vocabulary of terms for ISDNs*.

[2]   CCITT Recommendation I.130 (1988), *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*.

[3]   CCITT Recommendation Q.65 (1988), *Stage 2 of the method for the characterization of services supported by an ISDN*.

[4]   ITU-T Recommendation Q.71 (1993), *ISDN circuit mode switched bearer services*.

[5]   ITU-T Recommendation Z.100 (1993), *CCITT Specification and Description Language (SDL).*

3 Definitions

For the purposes of this Recommendation, the following definitions apply:

3.1 **integrated services digital network (ISDN)**: See 2.3/I.112 [1], definition 308.

3.2 **primary call**: One of the user A's (answered) calls.

3.3 **secondary call**: The other user A call (answered or alerting).

3.4 **service; telecommunications service**: See 2.2/I.112 [1], definition 201.

3.5 **transfer by join**: The effecting of transfer by joining together the primary and secondary calls at user A's local exchange.

3.6 **transfer by re-routing**: The effecting of transfer by establishing a new connection to replace the primary and secondary calls.

3.7 **user A**: The served user, i.e. the user requesting the ECT supplementary service.

3.8 **user B**: The other user in user A's primary call.

3.9 **user C**: The other user in user A's secondary call.

4 Symbols and abbreviations

For the purposes of this Recommendation, the following abbreviations are used.

CC   Call Control

CCA   Call Control Agent

ECT   Explicit Call Transfer

FE   Functional Entity

FEA   Functional Entity Action

ISDN   Integrated Services Digital Network

LE   Local Exchange

PTNX   Private Telecommunications Network Exchange

SDL   Specification and Description Language

TE   Terminal Equipment

5 Description

This Stage 2 supports only one variant of the ECT supplementary service, that of transfer by join. The functional model supports interworking with transfer by re-routing, which may occur within a private network but involving users of a public network.

Table 1 shows the states for the invocation of the ECT supplementary service.

TABLE 1/Q.82.7

States for invocation of the ECT supplementary service

Primary call	Secondary call
Active, idle	Active, idle
Active, held	Active, idle (Note 2)
Active, idle	Active, held (Note 2)
Active, idle	Alerting, idle (Note 1)
Active, held	Alerting, idle (Note 1)
Active, idle	Alerting, held (Note 1)
NOTES 1 Only applicable for an outgoing call. 2 These two entries are identical and there is no distinction between the information flows for the two calls, the only distinction being the held state of one of the calls.	

The procedures are currently restricted to basic telecommunication services involving a single 64 kbit/s connection. This Recommendation is not applicable to a videotelephony call involving two 64 kbit/s connections.

6 Derivation of the functional model

6.1 Functional model description

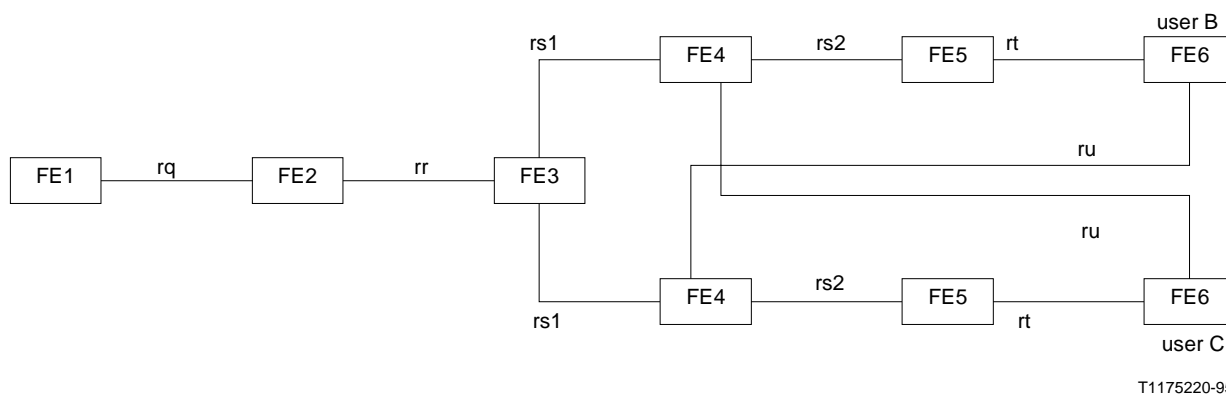The functional model for the ECT supplementary service is shown in Figure 1.

FIGURE 1/Q.82.7

Functional model for the ECT supplementary service

6.2 Description of functional entities

The Functional Entities (FEs) required by the ECT supplementary service in addition to those of basic call are as follows:

FE1:   Transfer invoke entity;

FE2:   Transfer validate entity;

FE3:   Transfer execute entity;

FE4:   Transfer screen entity;

FE5:   Transfer complete receive entity;

FE6:   Transfer inform receive entity.

6.3 Relationship with a basic service

The relationship with a basic service is as shown in Figure 2.
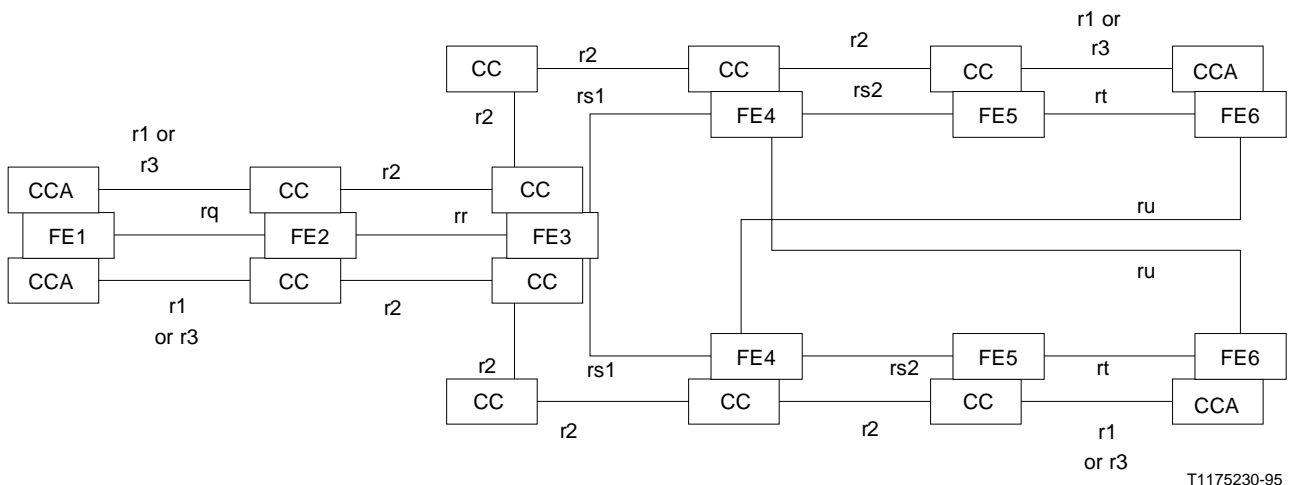
FIGURE 2/Q.82.7

Relationship with a basic service

7 Information flows

7.1 Information flow diagrams

The information flow diagrams assume the existence of a primary call and a secondary call and that both calls are maintained until the completion of the transfer. Clearing of the primary and secondary calls with respect to the served user is not shown as this uses basic call information flows only. Similarly any information flows concerned with holding and retrieving the primary and secondary calls are outside the scope of this Recommendation.

The TERMINAL DETAILS information flow may occur between both FE6s. Where there is no information to be sent at all, the information flow is not present in either direction. The information flow is only shown in one direction in Figure 3 for reasons of clarity.

The TRANSFER ACTIVE information flow will only occur in the case of an alerting transfer where the alerting user subsequently answers. In such a case, a TERMINAL DETAILS information flow from user B's FE6 may also occur as a result of receiving the second TRANSFER INFORM indication.
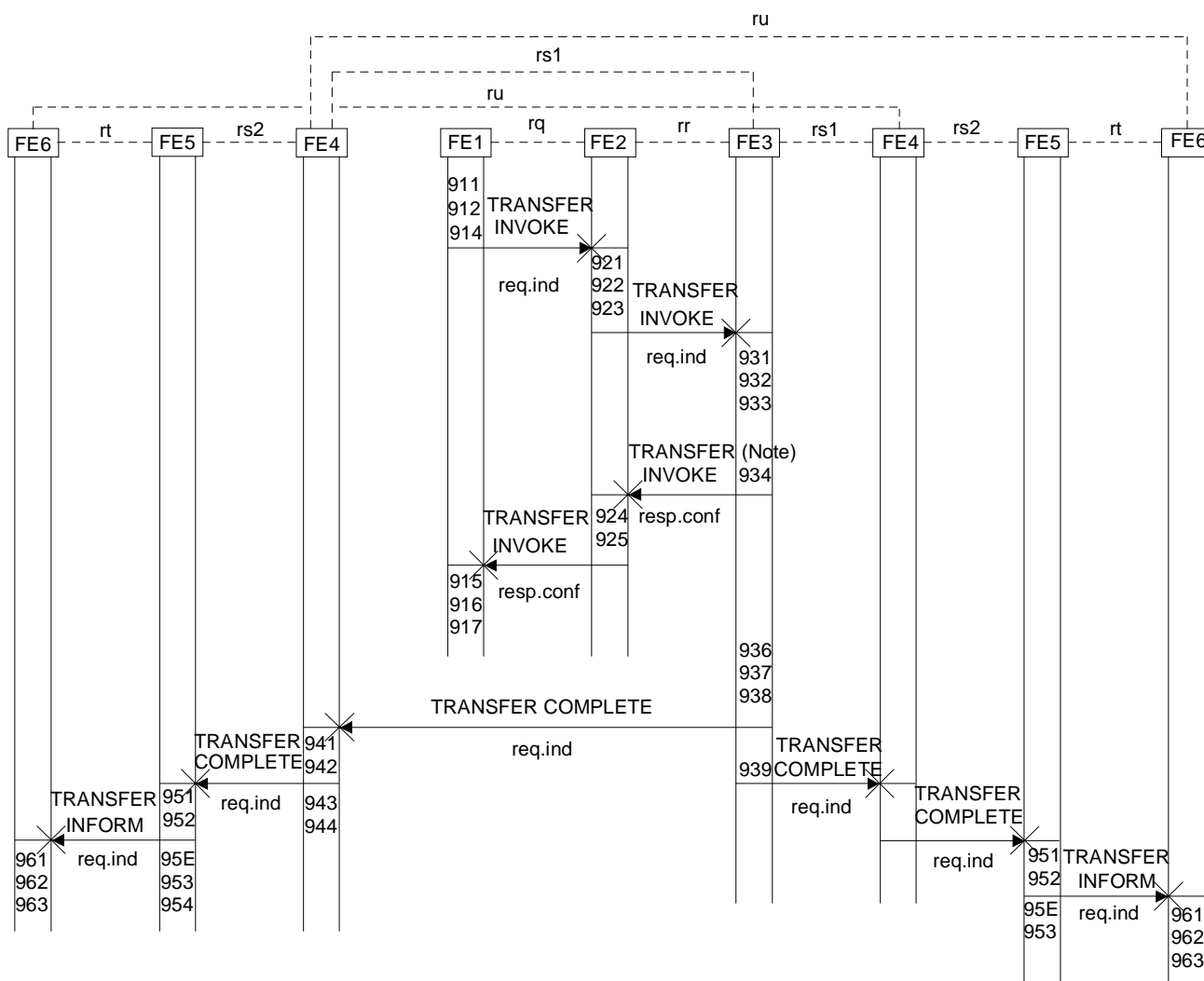
NOTE – If the optional procedures for preventing loops are provided, the information flow shown in Figure 4 occurs at this point, before proceeding with the rest of the information flow shown in this figure.

FIGURE 3/Q.82.7 (sheet 1 of 2)

Successful call transfer
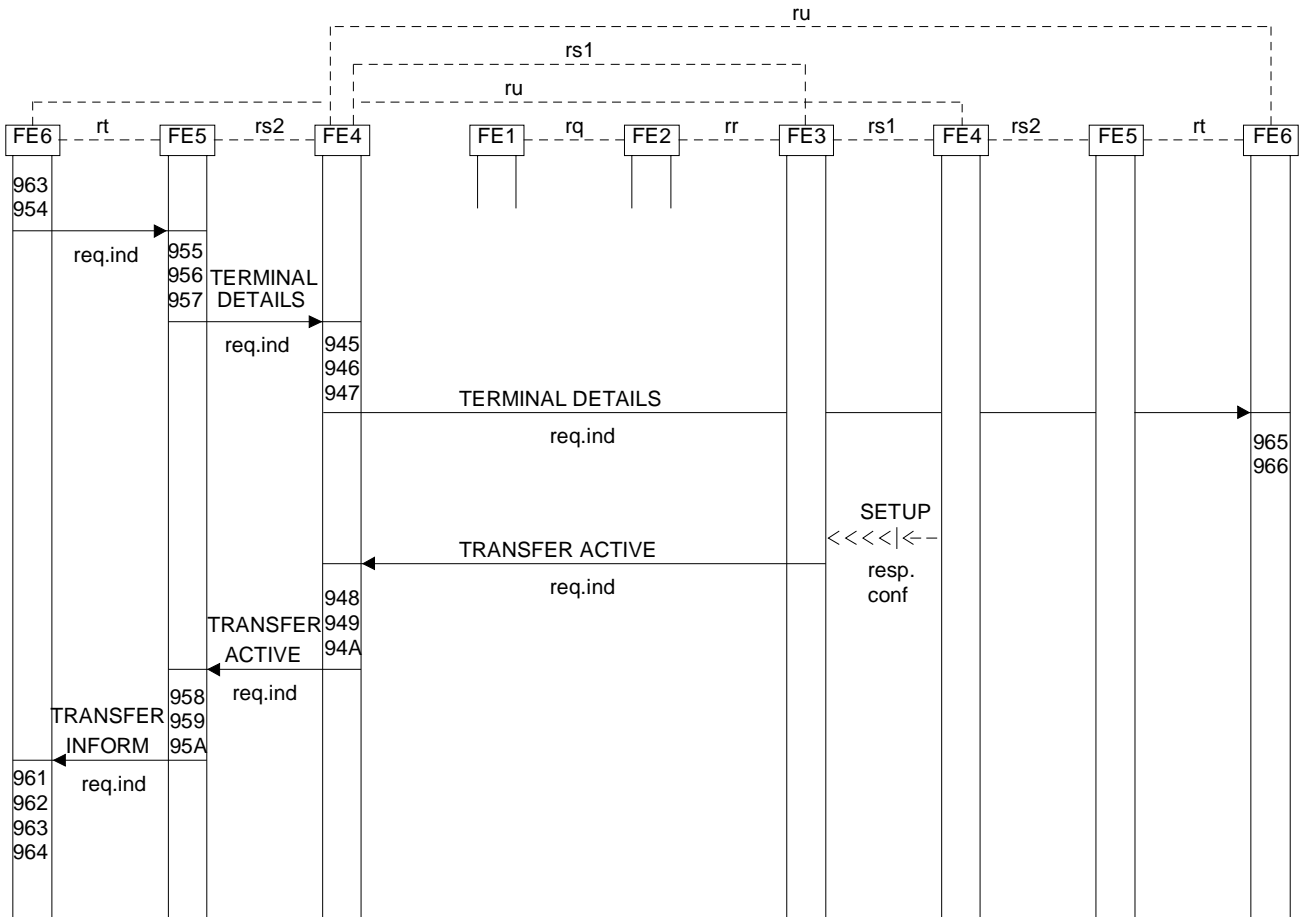
FIGURE 3/Q.82.7 (sheet 2 of 2)

Successful call transfer

Figure 4 shows the optional procedure for preventing loops.
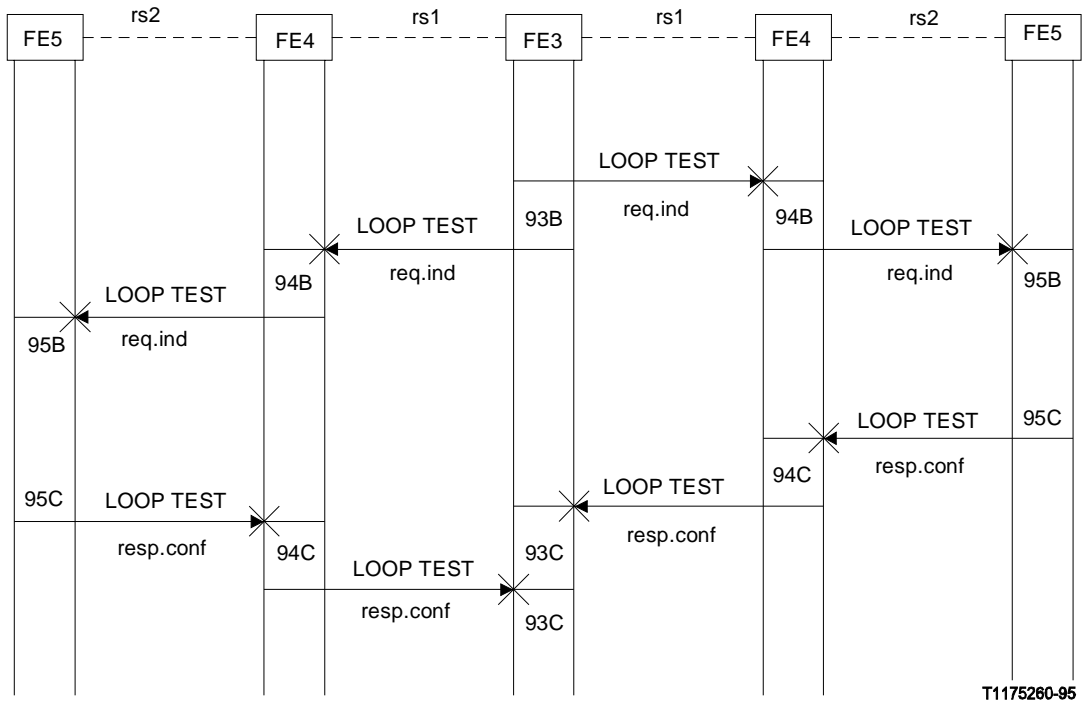
FIGURE 4/Q.82.7

Optional loop test procedure

7.2 Definition of the individual information flows

7.2.1 Relationship rq

7.2.1.1 Contents of TRANSFER INVOKE

This confirmed information flow initiates a transfer. It contains the identities of the calls involving user B and user C.

The contents of the TRANSFER INVOKE req.ind and TRANSFER INVOKE resp.conf information flows are shown in Table 2.

TABLE 2/Q.82.7

TRANSFER INVOKE

Name	req.ind	resp.conf
Call identities (Note)	M	-
Transfer result	-	M
NOTE – Means of providing such an identifier are outside the scope of this Recommendation. Such identification is local to relationship rq and may involve a local information flow across rq.		

7.2.2 Relationship rr

7.2.2.1 Contents of TRANSFER INVOKE

This confirmed information flow requests execution of a transfer. It contains the identities of the calls involving user B and user C.

The contents of the TRANSFER INVOKE req.ind and TRANSFER INVOKE resp.conf information flows are shown in Table 3.

TABLE 3/Q.82.7

TRANSFER INVOKE

Name	req.ind	resp.conf
Call identities (Note)	M	-
Transfer result	-	M
NOTE – Means of providing such an identifier are outside the scope of this Recommendation. Such identification is local to relationship rr and may involve a local information flow across rr.		

7.2.3   Relationship rs1

7.2.3.1   Contents of TRANSFER COMPLETE

This unconfirmed information flow indicates that a transfer has been effected.

The contents of the TRANSFER COMPLETE req.ind information flow are shown in Table 4.

TABLE 4/Q.82.7

TRANSFER COMPLETE

Name	req.ind
Transferred number	O (Note 1)
Alerting indication	O (Note 2)
NOTES 1 Mandatory if known. 2 Mandatory if other user is being alerted.	

7.2.3.2   Contents of TRANSFER ACTIVE

This unconfirmed information flow indicates that answer has taken place subsequent to an alerting transfer. The contents are the same as those of a basic call SETUP resp.conf.

7.2.3.3   Contents of LOOP TEST

This confirmed information flow indicates that a loop test has been invoked.

There are no contents of the LOOP TEST req.ind or LOOP TEST resp.conf information flows.

7.2.3.4   Contents of LOOP TEST REJECT

This unconfirmed information flow indicates that a loop test has failed.

The contents of the LOOP TEST REJECT req.ind information flow is shown in Table 5.

TABLE 5/Q.82.7

Contents of LOOP TEST REJECT

Name	req.ind
Reason	M

7.2.4   Relationship rs2

7.2.4.1   Contents of TRANSFER COMPLETE

This unconfirmed information flow indicates that a transfer has been effected.

The contents of the TRANSFER COMPLETE req.ind information flow are shown in Table 6.

TABLE 6/Q.82.7

TRANSFER COMPLETE

Name	req.ind
Transferred number	O (Note 1)
Transferred subaddress	O (Note 2)
Alerting indication	O (Note 3)
NOTES 1 Mandatory if known and not restricted. 2 Mandatory if transfer occurs with the other user alerting, and if the TRANSFER INFORM req.ind is being sent as a result of the answer to the alerting call, and if the subaddress is known and not restricted. Otherwise, the information shall not be sent. 3 Mandatory if the other user is being alerted.	

7.2.4.2   Contents of TRANSFER ACTIVE

This unconfirmed information flow indicates that answer has taken place subsequent to an alerting transfer. The contents are the same as those of a basic call SETUP resp.conf.

7.2.4.3   Contents of TERMINAL DETAILS

This unconfirmed information flow informs users of any subaddress associated with the other user involved in the transfer.

The contents of the TERMINAL DETAILS req.ind information flow are shown in Table 7.

TABLE 7/Q.82.7

TERMINAL DETAILS

Name	req.ind
Transferred subaddress	M

7.2.4.4   Contents of LOOP TEST

This confirmed information flow indicates that a loop test has been invoked.

There are no contents of the LOOP TEST req.ind or LOOP TEST resp.conf information flows.

7.2.4.5   Contents of LOOP TEST REJECT

This unconfirmed information flow indicates that a loop test has failed.

The contents of the LOOP TEST REJECT req.ind information flow are shown in Table 8.

TABLE 8/Q.82.7

Contents of LOOP TEST REJECT

Name	req.ind
Reason	M

7.2.5   Relationship rt

7.2.5.1   Contents of TRANSFER INFORM

This unconfirmed information flow informs users of the successful completion of a call transfer, and the identity of the other user.

The contents of the TRANSFER INFORM req.ind information flow are shown in Table 9.

TABLE 9/Q.82.7

TRANSFER INFORM

Name	req.ind
Transferred number	O (Note 1)
Alerting indication	O (Note 2)
NOTES	
1 Mandatory if known and not restricted.	
2 Mandatory if the other user is being alerted.	

7.2.5.2 Contents of TERMINAL DETAILS

This unconfirmed information flow informs users of any subaddress associated with the other user involved in the transfer.

The contents of the TERMINAL DETAILS req.ind information flow are shown in Table 10.

TABLE 10/Q.82.7

TERMINAL DETAILS

Name	req.ind
Transferred subaddress	M

7.2.6   Relationship ru

7.2.6.1   Contents of TERMINAL DETAILS

This unconfirmed information flow informs users of any subaddress associated with the other user involved in the transfer.

The contents of the TERMINAL DETAILS req.ind information flow are shown in Table 11.

TERMINAL DETAILS

Name	req.ind
Transferred subaddress	M

8   SDL diagrams for functional entities

The Specification and Description Language (SDL) diagrams are provided according to Recommendation Z.100 [5].

8.1 FE1

The SDL diagram for FE1 is shown in Figure 5.
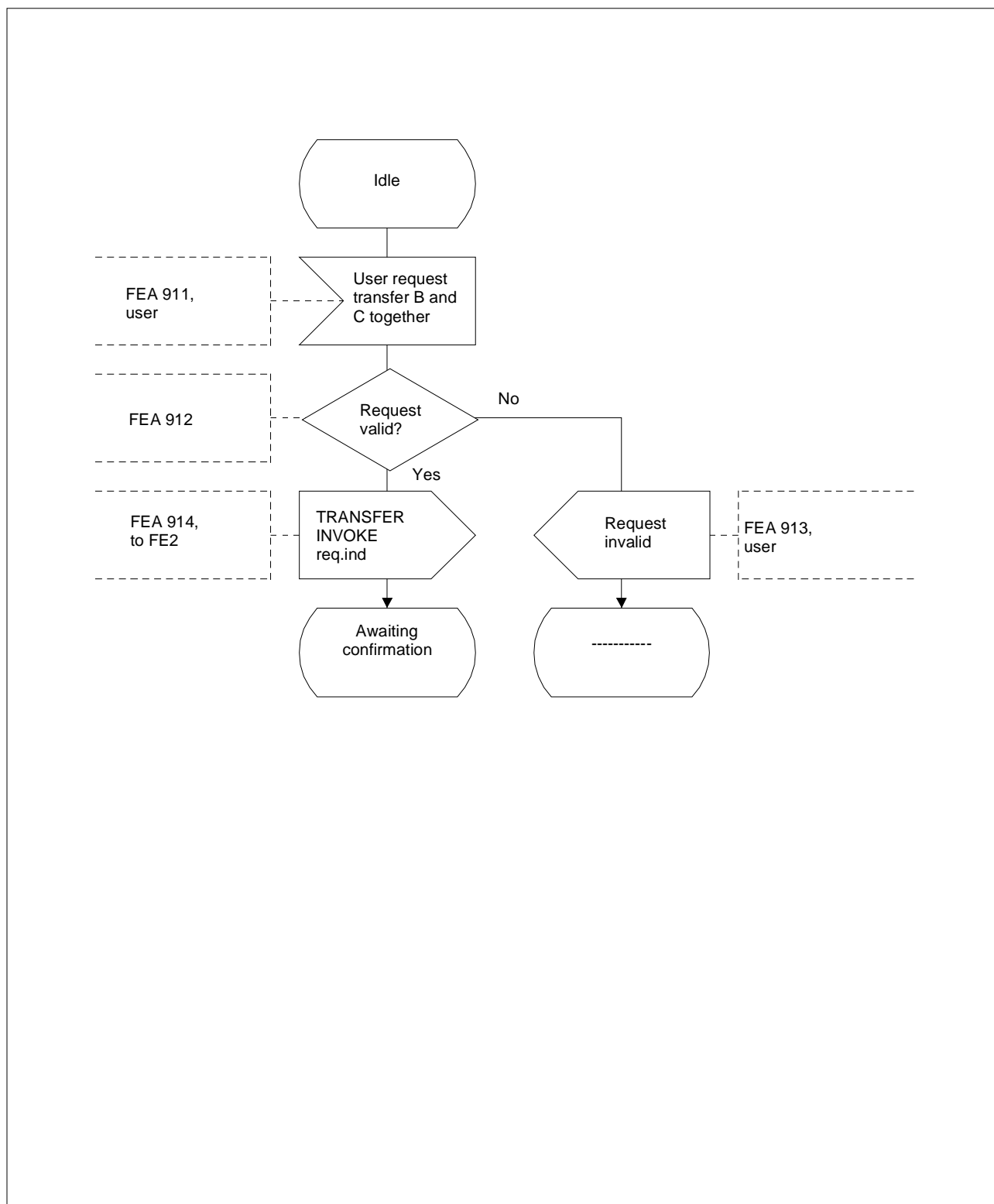
T1175270-95

FIGURE 5/Q.82.7 (sheet 1 of 2)

SDL diagrams for FE1
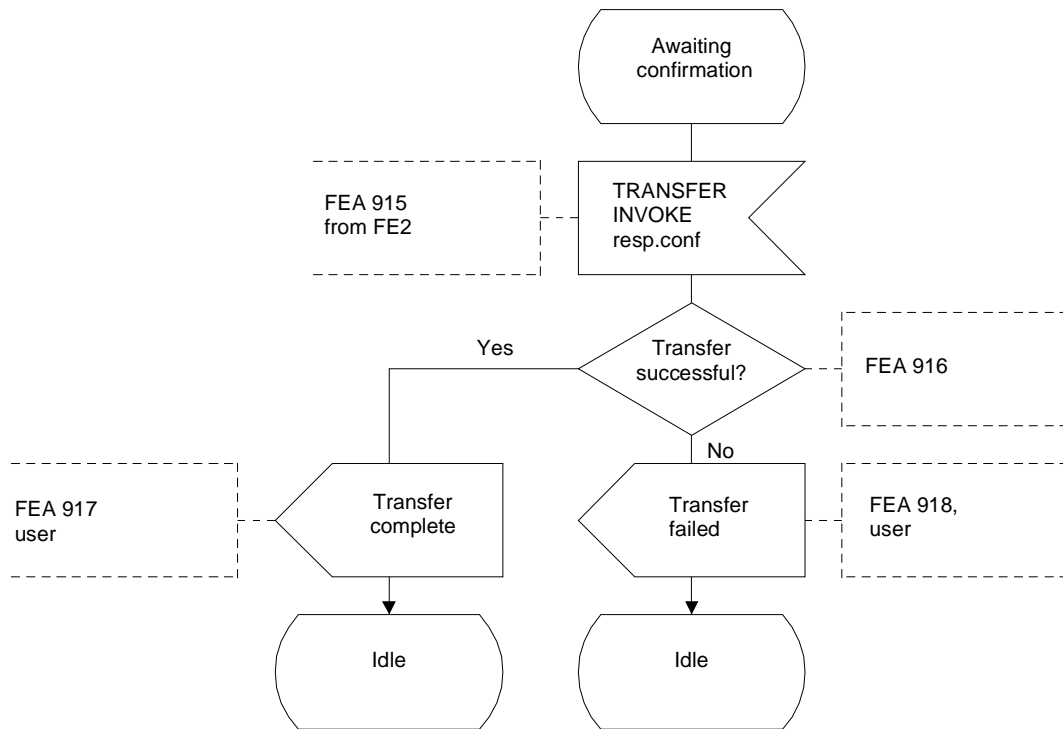
FIGURE 5/Q.82.7 (sheet 2 of 2)

SDL diagrams for FE1

8.2   FE2

The SDL diagram for FE2 is shown in Figure 6.

Process FE2_ECT

SE0368_F6(1)

```
                              ( Idle )

                          TRANSFER
                          INVOKE          - - - -   FEA 921,
                          req.ind                   from FE1

                              |
                   Is transfer barred by
         Yes       virtue of call states
      <------------ or supplementary service   - - -  FEA 922
                     interactions?

                              | No

                          TRANSFER
                          INVOKE          - - - -   FEA 923,
                          req.ind                   to FE3

                          Awaiting
                          confirmation

                          TRANSFER
                          INVOKE          - - - -   FEA 925,
                          resp.conf                 from FE3

   FEA 924,      TRANSFER            TRANSFER
   to FE1        INVOKE              INVOKE         - - - -   FEA 926,
    - - - -      (barred)            resp.conf                to FE1
                 resp.conf

                ( ---------- )      ( --------- )
```

T1175290-95

FIGURE 6/Q.82.7

SDL diagrams for FE2

8.3 FE3

The SDL diagram for FE3 is shown in Figure 7.

Process FE3_ECT

Idle

SE0368_F7.1(2)

TRANSFER INVOKE req.ind

FEA 931, from FE2

NOTE – For example, may be for operational reasons, or because CUG restrictions have been infringed.

Identify primary and secondary calls

FEA 932

Transfer request unacceptable? (Note)

Yes

No

FEA 933

Loop prevention procedure

Yes

No

Loop Test

FEA 935, to FE2

TRANSFER INVOKE (reject) resp.conf

TRANSFER INVOKE (accept) resp.conf

success

failure

FEA 934, to FE2

Connect call paths between user B and user C together

FEA 936

Clear call paths to user A

FEA 937

TRANSFER COMPLETE req.ind

FEA 938, to B's FE4

TRANSFER COMPLETE req.ind

FEA 939, to C's FE4

Is user C being alerted?

No

Yes

Wait transfer active

T1175300-95

FIGURE 7/Q.82.7 (sheet 1 of 4)

SDL diagrams for FE3

FIGURE 7/Q.82.7 (sheet 2 of 4)

SDL diagrams for FE3

FIGURE 7/Q.82.7 (sheet 3 of 4)

SDL diagrams for FE3
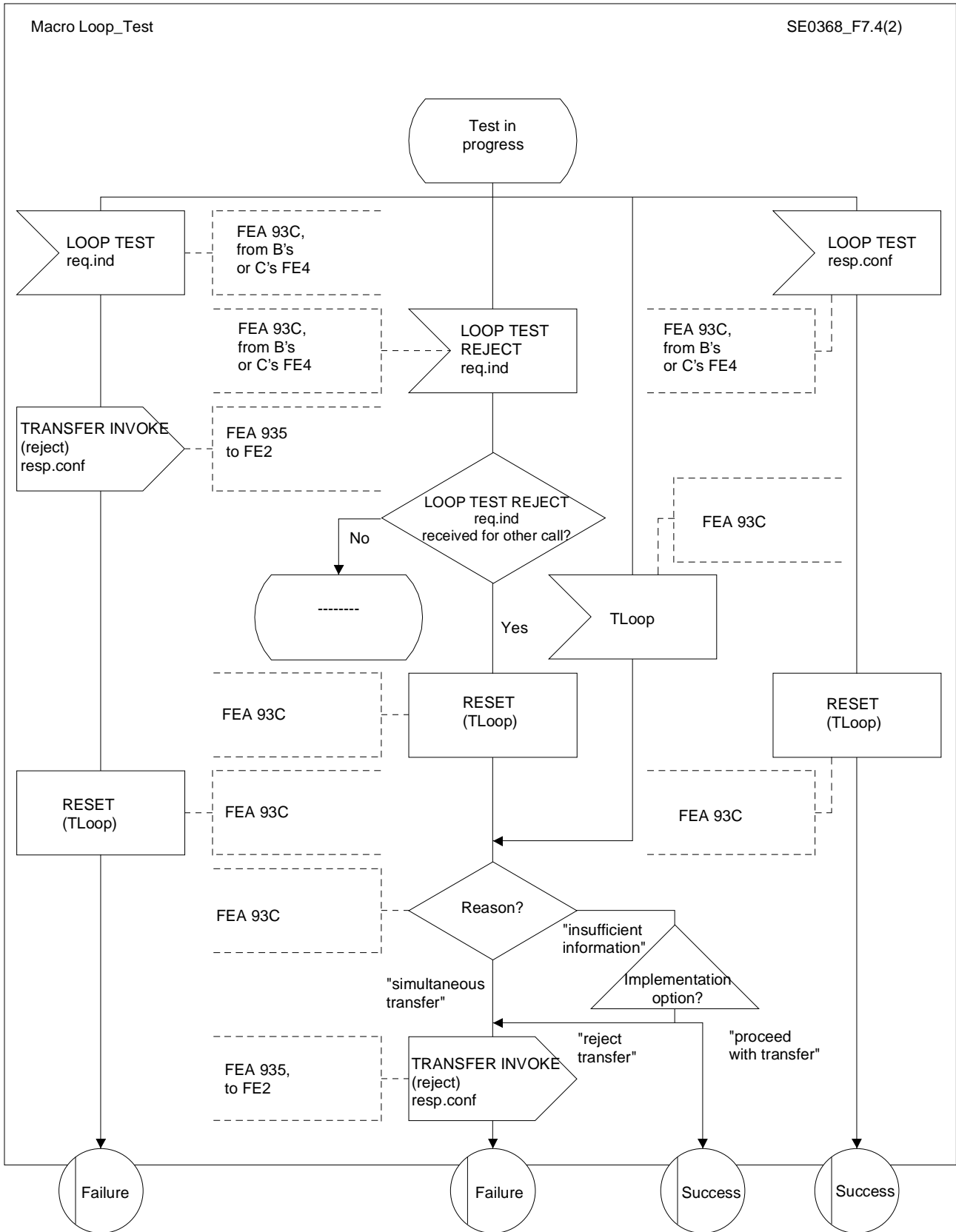
FIGURE 7/Q.82.7 (sheet 4 of 4)

SDL diagrams for FE3

T1175330-95
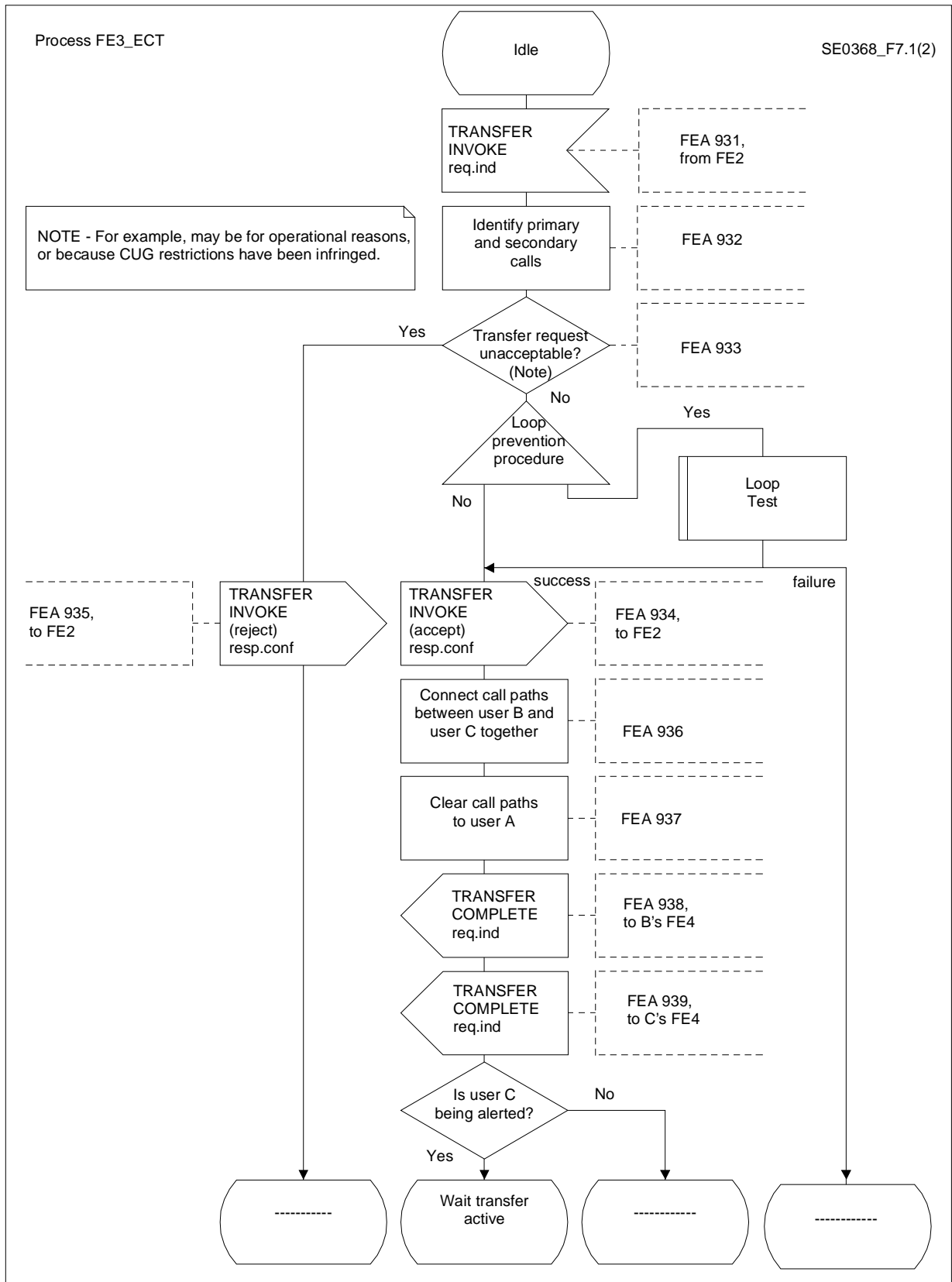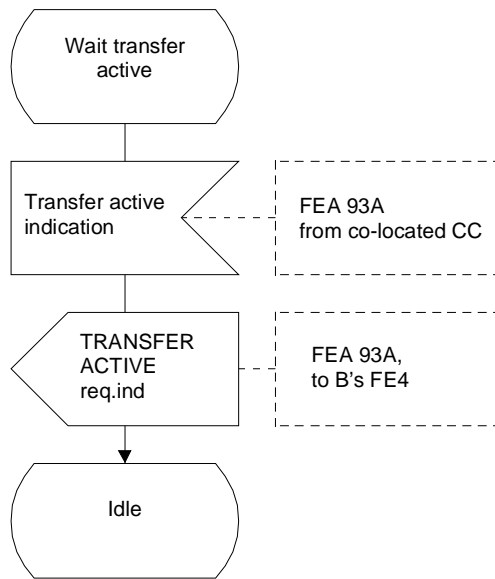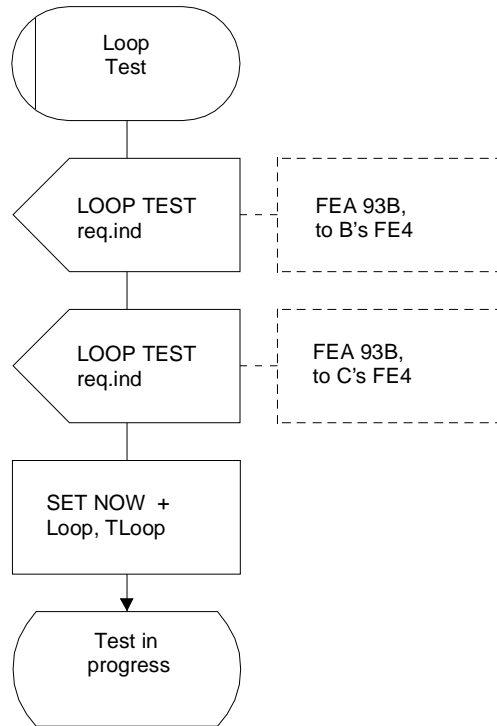
8.4 FE4

The SDL diagram for FE4 is shown in Figure 8.

Process FE4_ECT   SE0368_F8.1(3)

```
                              ┌──────────────┐
                              │     Idle     │
                              └──────────────┘
```

TRANSFER COMPLETE req.ind — FEA 941, from FE3

FEA 945 from local FE5 — TERMINAL DETAILS req.ind

TRANSFER COMPLETE req.ind — FEA 942, to local FE5

Cancel any active user-to-user signalling supplementary service — FEA 943

Transmission of terminals details permitted?   No

Store call details — FEA 944

Yes

FEA 947, to remote FE6 — TERMINAL DETAILS req.ind

Other party being alerted?   No

Yes

Wait transfer active

T1175340-95

FIGURE 8/Q.82.7 (sheet 1 of 3)

SDL diagrams for FE4

```
                                   ┌──────────────┐
                                   │ Wait transfer │
                                   │    active     │
                                   └──────┬───────┘
         ┌─────────────────────┬──────────┴────────────┬─────────────────────┐
┌ ─ ─ ─ ─ ─ ─ ─ ┐    ╱TRANSFER  ╲          ┌ ─ ─ ─ ─ ─ ─ ┐    ╱TERMINAL ╲
  FEA 948       ─ ─ ─ ACTIVE          FEA 945,          ─ ─ ─  DETAILS
  from FE3          ╲ req.ind ╱         from local FE5      ╲ req.ind ╲
└ ─ ─ ─ ─ ─ ─ ─ ┘    └────┬───┘        └ ─ ─ ─ ─ ─ ─ ┘         └──┬───┘
```

FEA 948
from FE3

TRANSFER
ACTIVE
req.ind

FEA 945,
from local FE5

TERMINAL
DETAILS
req.ind

FEA 949

Store call
details

FEA 946

Transmission of
terminal details
permitted?

No

Yes

FEA 94A,
to local FE5

TRANSFER
ACTIVE
req.ind

FEA 947,
to remote FE6

TERMINAL
DETAILS
req.ind

Idle
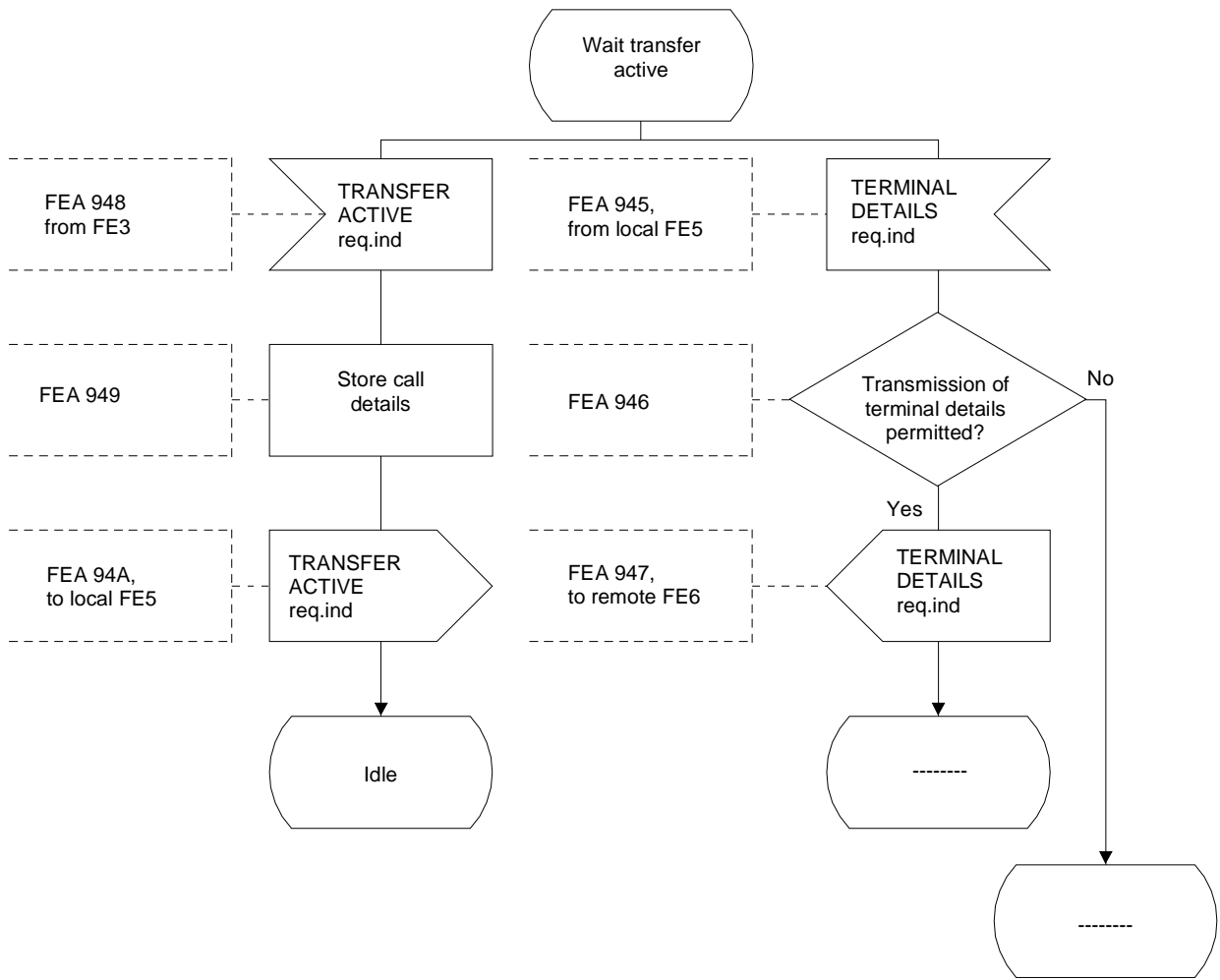
T1175350-95

FIGURE 8/Q.82.7 (sheet 2 of 3)

SDL diagrams for FE4

FIGURE 8/Q.82.7 (sheet 3 of 3)

SDL diagrams for FE4

8.5 FE5

The SDL diagram for FE5 is shown in Figure 9.

FIGURE 9/Q.82.7 (sheet 1 of 3)

SDL diagrams for FE5
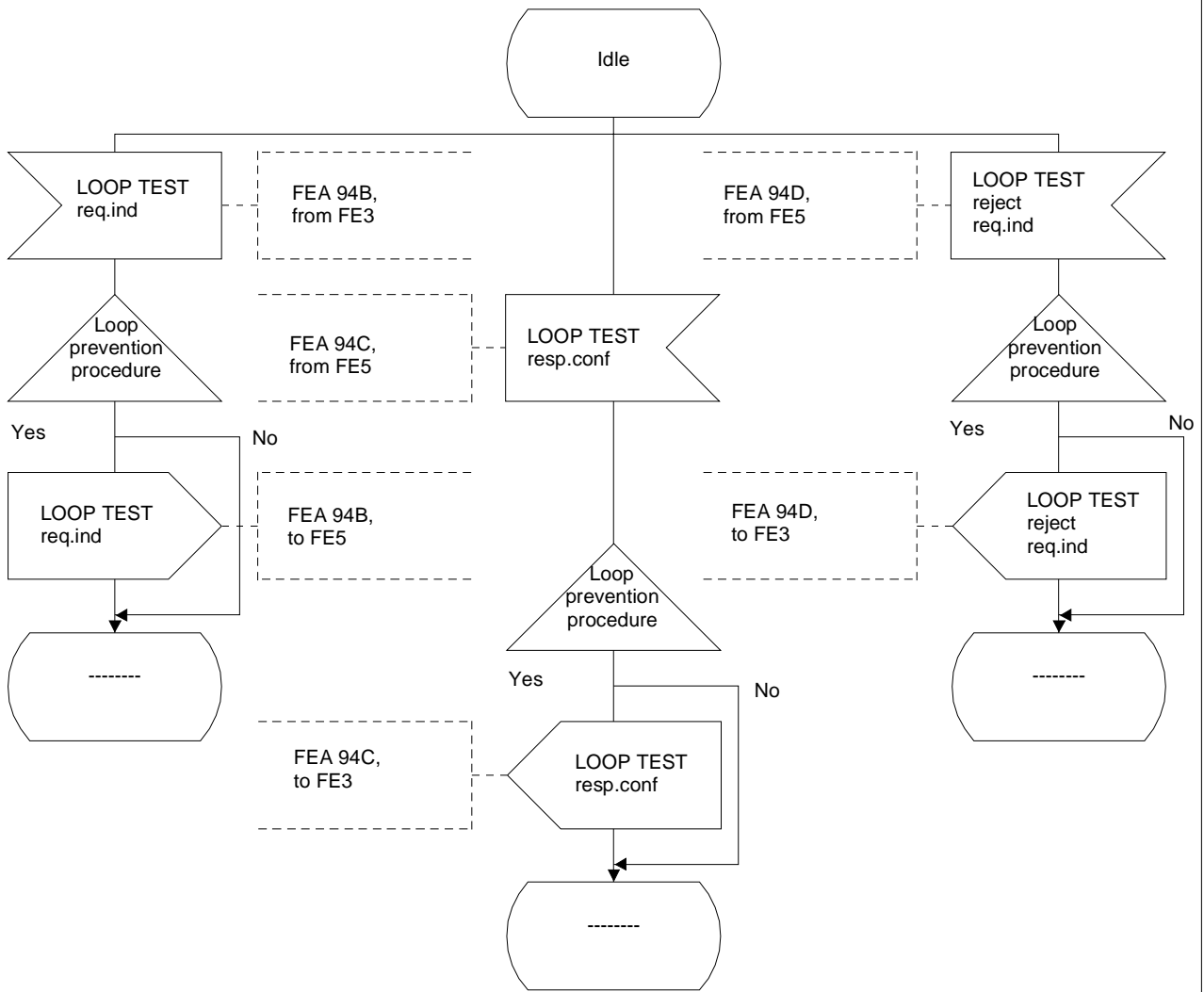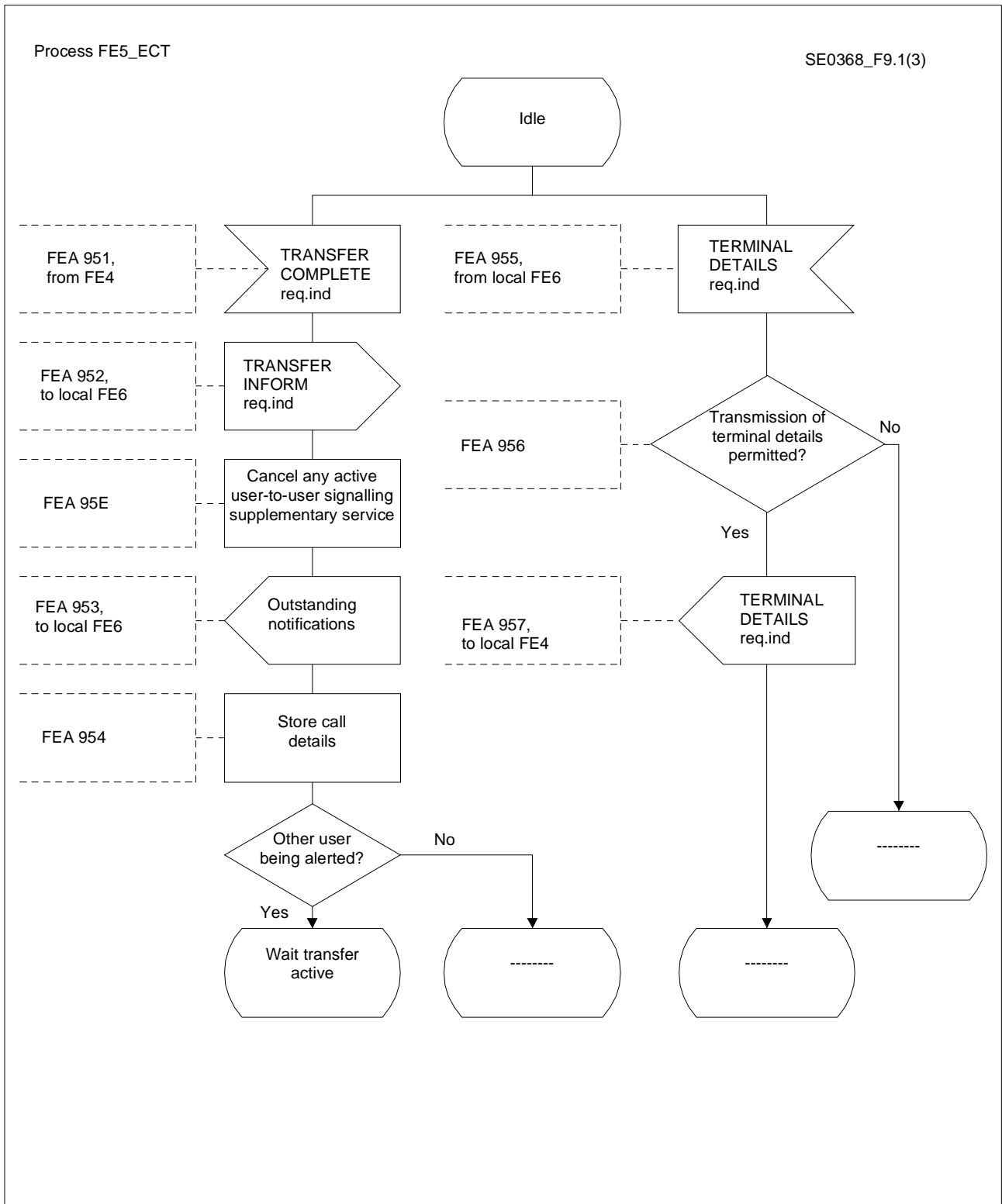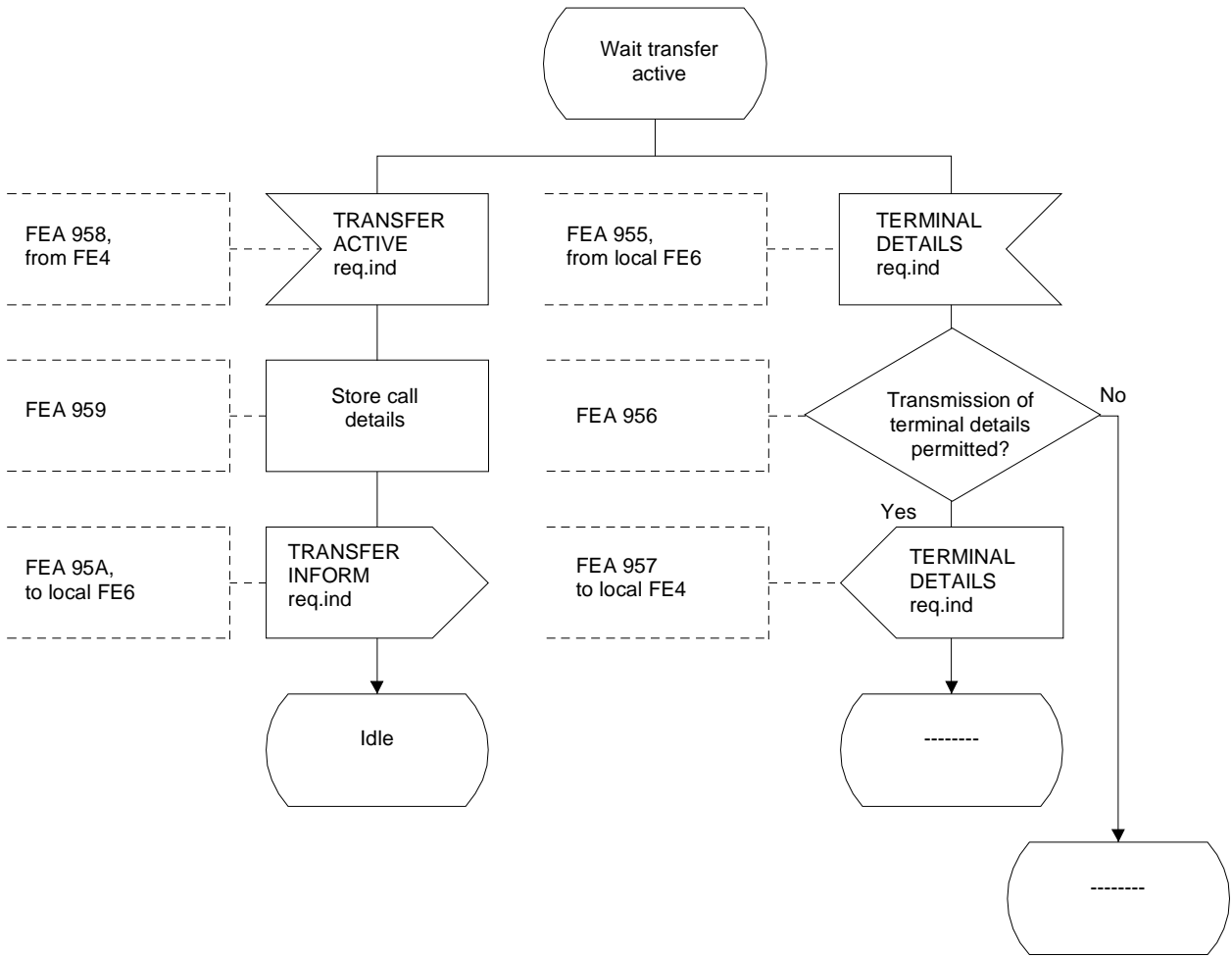
Wait transfer
active

FEA 958,
from FE4

TRANSFER
ACTIVE
req.ind

FEA 955,
from local FE6

TERMINAL
DETAILS
req.ind

FEA 959

Store call
details

FEA 956

Transmission of
terminal details
permitted?

No

Yes

FEA 95A,
to local FE6

TRANSFER
INFORM
req.ind

FEA 957
to local FE4

TERMINAL
DETAILS
req.ind

Idle

T1175380-95

FIGURE 9/Q.82.7 (sheet 2 of 3)

SDL diagrams for FE5

Idle

LOOP TEST
req.ind

FEA 95B,
from FE4

Loop
prevention
procedure?

Yes

No

Collected
FE3 in state
"Test in progress"?

Yes

No

FEA 95C,
to FE4

LOOP TEST
REJECT
resp.conf

LOOP TEST
REJECT
req.ind

FEA 95D,
to FE4
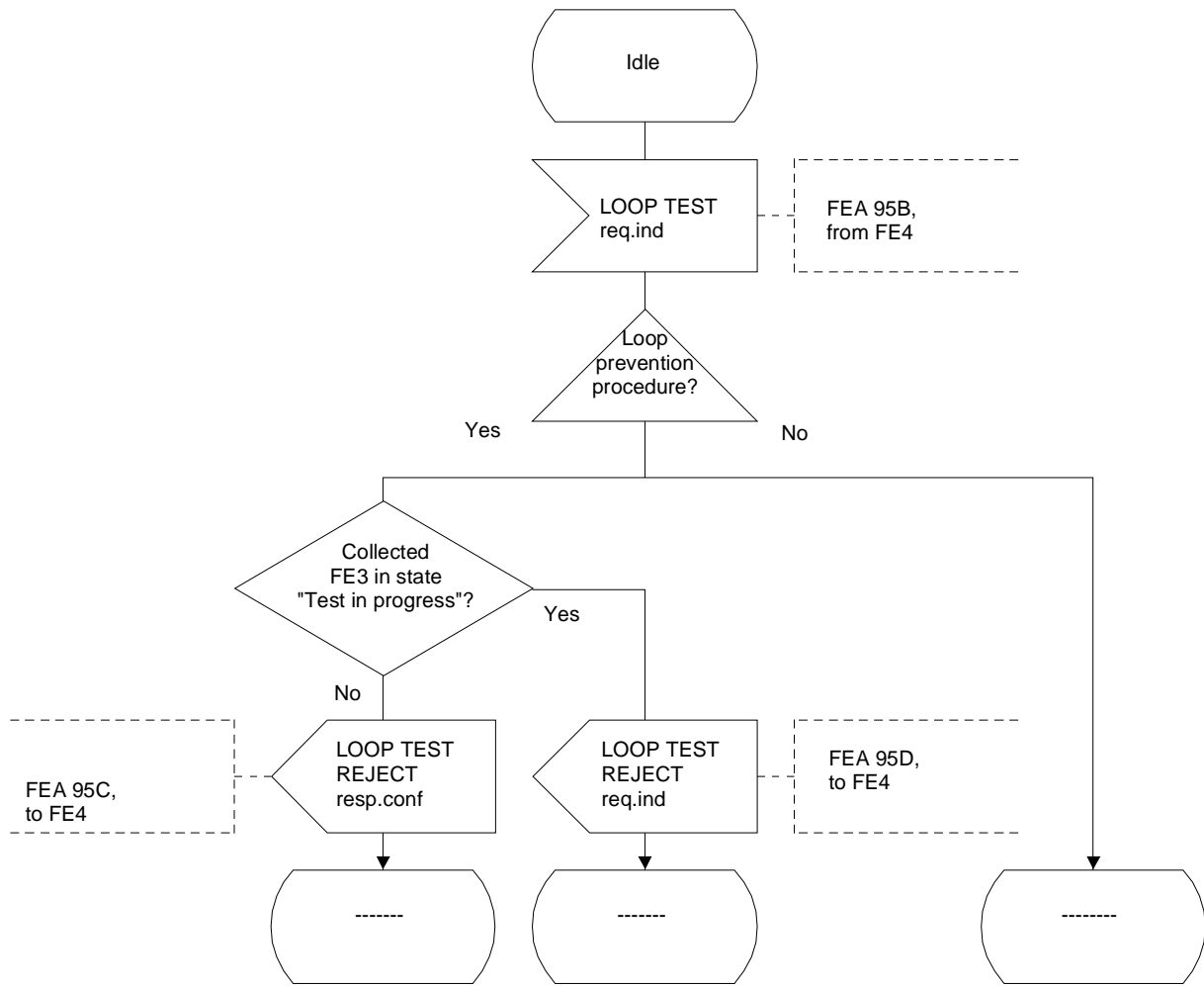
T1175390-95

FIGURE 9/Q.82.7 (sheet 3 of 3)

SDL diagrams for FE5

8.6　FE6

The SDL diagram for FE6 is shown in Figure 10.

Idle

FEA 961,
from FE5

TRANSFER
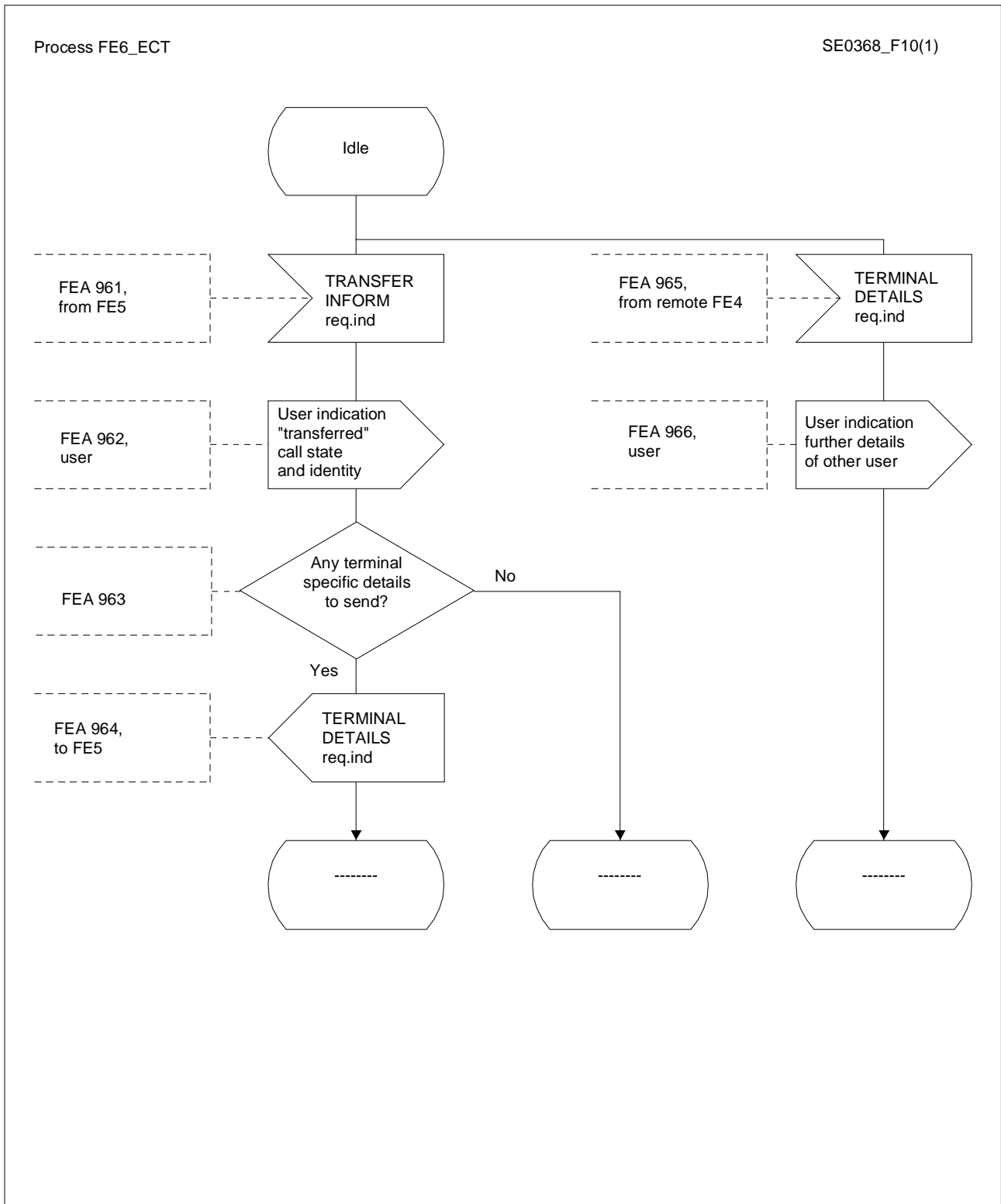INFORM
req.ind

FEA 965,
from remote FE4

TERMINAL
DETAILS
req.ind

FEA 962,
user

User indication
"transferred"
call state
and identity

FEA 966,
user

User indication
further details
of other user

FEA 963

Any terminal
specific details
to send?

No

Yes

FEA 964,
to FE5

TERMINAL
DETAILS
req.ind

T1175400-95

FIGURE 10/Q.82.7

SDL diagrams for FE6

9 Functional Entity Actions (FEAs)

9.1 FEAs of FE1

911: FE1 receives the request for transfer.

912: FE1 optionally performs local checks with respect to the compatibility of the two calls against information held with the CCAs.

913: If the request is found locally to be invalid, the requesting user is informed that the transfer has failed.

914: If the request is found locally to be valid, FE2 is requested to execute the transfer.

915: FE1 receives the result of the transfer from FE2.

916: FE1 examines the result of the transfer.

917: If the transfer is successful, the requesting user is informed of the successful completion. Optionally the calls involved may be released (if they have not already been cleared by FE2).

918: If the transfer is unsuccessful, the requesting user is informed.

9.2 FEAs of FE2

921: FE2 receives the request for invocation of transfer from FE1.

922: FE2 determines whether the transfer is valid in terms of the two calls to be transferred. Such checks are network specific; when FE2 resides in the public network it shall check that one call is answered and held and that the other call is not held and is answered or alerting (see Table 1), that the requesting user is not a conference controller, that the three-party supplementary service has not been invoked by the requesting user, and that closed user group restrictions would not be violated if the transfer were allowed to proceed. Checks performed when FE2 is in another network are outside the scope of this Recommendation.

923: If the transfer is permitted, a request for transfer is sent to FE3.

924: If the transfer is barred, a response indicating rejection is returned to FE1.

925: The result of the transfer is received from FE3.

926: The result of the transfer is relayed to FE1.

9.3 FEAs of FE3

931: FE3 receives the request for invocation of transfer from FE2.

932: FE3 identifies the primary and secondary calls.

933: FE3 shall verify whether the requested transfer is allowed or, for example, should be rejected for operational reasons, or would violate closed user group restrictions if allowed to proceed.

934: If the transfer is permitted, a response indicating success is returned to FE2.

935: If the transfer is barred, a response indicating rejection is returned to FE2.

936: The call paths from user A's exchange toward user B and user C are joined together.

937: The call paths from user A's exchange toward user A are cleared.

938: Completion of the transfer is indicated to user B's exchange. This includes the identity of user C where known and an indication of whether user C is being alerted.

939: Completion of the transfer is indicated to user C's exchange. This includes the identity of user B where known.

93A: Following an alerting transfer, answer by user C is indicated to user B's FE4 on receipt of the basic call setup confirmation by the Call Control (CC) collocated with FE3.

93B: As a network option, a LOOP TEST req.ind is sent to both FE4s to determine if a loop exists.

93C: As a network option, the results of the loop test are processed.

9.4 FEAs of FE4

941: FE4 receives the indication of transfer completion from FE3.

942: The indication of transfer completion is passed to the local FE5.

943: If FE4 is not allocated to a gateway, any active user-to-user supplementary service is cancelled.

944: Details received in the transfer complete indication relevant to the network are stored.

945: FE4 receives terminal specific details intended for the remote user from the local FE5.

946: FE4 determines whether or not such information transfer is allowed. The mechanism for deciding upon this (for example a timer or counter) is implementation dependent.

947: If the information can be transferred, it is sent to the remote FE6.

948: FE4 receives the indication that answer has taken place subsequent to an alerting transfer.

949: Details received in the transfer active indication relevant to the network are stored.

94A: The indication that answer has taken place is passed to the local FE5.

94B: As a network option, a LOOP TEST req.ind received from FE3 is relayed to FE5.

94C: As a network option, a LOOP TEST resp.conf received from FE5 is relayed to FE3.

94D: As a network option, a LOOP TEST REJECT req.ind received from FE5 is relayed to FE3.

9.5 FEAs of FE5

951: FE5 receives the indication of transfer completion from FE4.

952: The indication of transfer completion is passed to the local FE6.

953: Any outstanding notifications (for example that the local user is holding) are sent to the remote user.

954: Details received in the transfer complete indication relevant to the network are stored.

955: FE5 receives terminal specific details intended for the remote user from the local FE6.

956: FE5 determines whether or not such information transfer is allowed. The mechanism for deciding upon this (for example a timer or counter) is implementation dependent.

957: If the information can be transferred, it is relayed to the local FE4.

958: FE5 receives the indication that answer has taken place subsequent to an alerting transfer.

959: Details received in the transfer active indication relevant to the network are stored.

95A: The indication that answer has taken place is passed to the local FE6.

95B: As a network option, a LOOP TEST req.ind received from FE4 is processed.

95C: As a network option, if there is no colocated FE3 in state "TEST IN PROGRESS" for the same call, a LOOP TEST resp.conf is sent to FE4.

95D: As a network option, if there is no colocated FE3 in state "TEST IN PROGRESS" for the same call, a LOOP TEST REJECT req.ind is sent to FE4.

95E: Any active user-to-user signalling supplementary service is cancelled.

9.6 FEAs of FE6

961: FE6 receives the indication that a transfer or answer following an alerting transfer has taken place.

962: The local user is informed of the transfer or the answer and the other details associated with it, such as other party number (if received).

963: FE6 determines whether there is any subaddress to be sent to the other user.

964: If there is a subaddress to be sent, this is indicated to the local FE5.

965: FE6 receives the subaddress associated with the remote terminal.

966: The local user is informed of the other terminal's subaddress.

10 Allocation of functional entities to physical locations

The possible physical locations of functional entities are shown in Table 12.

TABLE 12/Q.82.7

Allocation of functional entities

	FE1	FE2	FE3	FE4	FE5	FE6
Scenario 1 (Note 1)	A's TE	A's LE	A's LE	B's LE C's LE	B'sLE C's LE	B's TE C's TE
Scenario 2 (Note 1)	A's TE	A's LE	A's LE	B's LE C's LE	B's PTNX C's LE	B's TE C's TE
Scenario 3 (Note 1)	A's TE	A's LE	A's LE	B's LE C's LE	B's LE C's PTNX	B's TE C's TE
Scenario 4 (Note 1)	A's TE	A's LE	A's LE	B's LE C's LE	B's PTNX C's PTNX	B's TE C's TE
Scenario 5	A's TE	A's PTNX	PTNX	B's LE C's LE	B's LE C's LE	B's TE C's TE
Scenario 6	A's TE	A's PTNX	PTNX	B's LE C's LE	B's PTNX C's LE	B's TE C's TE
Scenario 7	A's TE	A's PTNX	PTNX	B's LE C's LE	B's LE C's PTNX	B's TE C's TE
Scenario 8	A's TE	A's PTNX	PTNX	B's LE C's LE	B's PTNX C's PTNX	B's TE C's TE
Scenario 9 (Note 2)	A's TE	A's PTNX	A's LE	B's LE C's LE	B's LE C's LE	B's TE C's TE
Scenario 10 (Note 2)	A's TE	A's PTNX	A's LE	B's LE C's LE	B's PTNX C's LE	B's TE C's TE
Scenario 11 (Note 2)	A's TE	A's PTNX	A's LE	B's LE C's LE	B's LE C's PTNX	B's TE C's TE
Scenario 12 (Note 2)	A's TE	A's PTNX	A's LE	B's LE C's LE	B's PTNX C's PTNX	B's TE C's TE

NOTES
1 FE4 can also be allocated in the gateway of user A's network.
2 FE2 and FE3 shall exist in adjacent basic call CC's in this scenario. The primary and secondary calls may exist in separate access links between the same PBX and same LE.

Scenario 1 represents transfer by join either entirely within one public network, or between different public networks.

Scenarios 2, 3 and 4 represent transfer by join where user B, user C, and both user B and user C are in a private network respectively.

Scenarios 5, 6, 7 and 8 represent transfer (by join or re-routing) where the transfer is invoked from and controlled within a private network for the cases where both user B and user C, only user C, only user B, and neither user B nor user C, are in the public network respectively. In these scenarios, the PTNX where the functionality of FE3 is realized may or may not be user A's PTNX and in the case of transfer by re-routing the functionality may be split across a number of PTNXs.

ITU-T RECOMMENDATIONS SERIES

Series A   Organization of the work of the ITU-T

Series B   Means of expression

Series C   General telecommunication statistics

Series D   General tariff principles

Series E   Telephone network and ISDN

Series F   Non-telephone telecommunication services

Series G   Transmission systems and media

Series H   Transmission of non-telephone signals

Series I   Integrated services digital network

Series J   Transmission of sound-programme and television signals

Series K   Protection against interference

Series L   Construction, installation and protection of cables and other elements of outside plant

Series M   Maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits

Series N   Maintenance: international sound-programme and television transmission circuits

Series O   Specifications of measuring equipment

Series P   Telephone transmission quality

Series Q   Switching and signalling

Series R   Telegraph transmission

Series S   Telegraph services terminal equipment

Series T   Terminal equipment and protocols for telematic services

Series U   Telegraph switching

Series V   Data communication over the telephone network

Series X   Data networks and open system communication

Series Z   Programming languages