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OF ITU

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(03/93)

GENERAL RECOMMENDATIONS ON TELEPHONE SWITCHING AND SIGNALLING

FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN

STAGE 2 DESCRIPTION FOR ADDITIONAL INFORMATION TRANSFER SUPPLEMENTARY SERVICES

CLAUSE 1 – USER-TO-USER SIGNALLING (UUS)

ITU-T Recommendation Q.87

(Previously “CCITT Recommendation”)

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. 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, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation Q.87, clause 1 was revised by the ITU-T Study Group XI (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms “CCITT, CCIR or IFRB” or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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

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SUMMARY

This Recommendation describes the Stage 2 of the User-to-User Signalling supplementary service supported by an ISDN.

The Stage 2 descriptions are comprised of the switching functions and signalling information flows.

The User-to-User Signalling 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 Transfer in association with a circuit-switched telecommunication service only. Procedures to permit User-to-User Information transfer in association with other types of calls (e.g. packet bearer services) need to be investigated.

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STAGE 2 DESCRIPTION FOR ADDITIONAL INFORMATION TRANSFER SUPPLEMENTARY SERVICES

(Melbourne, 1988; modified at Helsinki, 1993)

1 User-to-User Signalling (UUS)

1.1 Scope

This Recommendation defines the Stage 2 of the Integrated Services Digital Network (ISDN) as provided by the telecommunications operators for the User-to-User Signalling (UUS) supplementary services. Stage 2 identifies the functional capabilities and the information flows needed to support the service description. The Stage 2 description also identifies user operations not directly associated with a call (see Recommendation I.130 [1]).

This Recommendation is defined according to the methodology specified in Recommendation Q.65 [2].

This Recommendation does not formally describe the relationship between these supplementary services and the basic call but, where possible this information is included for guidance.

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 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 service) need to be investigated.

The UUS supplementary services are applicable to all telecommunication services.

This Recommendation is applicable to the Stage 3 Recommendation for the ISDN UUS supplementary services, as defined in Recommendation I.130 [1].

1.2 References

These references are cited at the appropriate places in the text and the publications are listed hereafter. Dated references, subsequent amendments to, or revisions of any of these publications apply to this Recommendation only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] CCITT Recommendation *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*, Rec. I.130, 1988.
- [2] CCITT Recommendation *Stage 2 of the method for the characterization of services supported by an ISDN*, Rec. Q.65, 1988.
- [3] CCITT Recommendation *Integrated Services Digital Network (ISDN); User-to-User Signalling (UUS) supplementary service; Service description*, Rec. I.257.1.

- [4] CCITT Recommendation *Integrated Services Digital Network (ISDN); Basic call handling for Circuit Switched Bearer Services; Functional capabilities and information flows*, Rec. Q.71, 1972.
- [5] CCITT Recommendation *Vocabulary of terms for ISDNs*, Rec. I.112, 1988.
- [6] CCITT Recommendation *Principles of telecommunication services supported by an ISDN and the means to describe them*, Rec. I.210, 1988.

1.3 Definitions

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

Integrated Services Digital Network (ISDN): see 2.3/I.112 definition 308 [5].

Service: telecommunication service: see 2.2/I.112 definition 201 [5].

Supplementary service: see 2.4/I.210 [6].

1.4 Symbols and abbreviations

For the purpose of this Recommendation, the following abbreviations are used:

CC	Call Control
CCA	Call Control Agent
FE	Functional Entity
FEA	Functional Entity Action
ISDN	Integrated Services Digital Network
LE	Local Exchange
np	Not Provided
p	Provided
PNX	Private Network Exchange
re	Requested and Essential
rne	Requested but Not Essential
UUS1	User-to-User Signalling Service 1
UUS2	User-to-User Signalling Service 2
UUS3	User-to-User Signalling Service 3
TE	Terminal Equipment
UUI	User-to-User Information
UUM	User-to-User Message
UUS	User-to-User Signalling

1.5 Description

The general description of the UUS supplementary service is specified in Recommendation I.257.1 [3].

1.6 Derivation of the functional model

1.6.1 Functional model description

The model for the UUS supplementary service is shown in Figure 1-1.

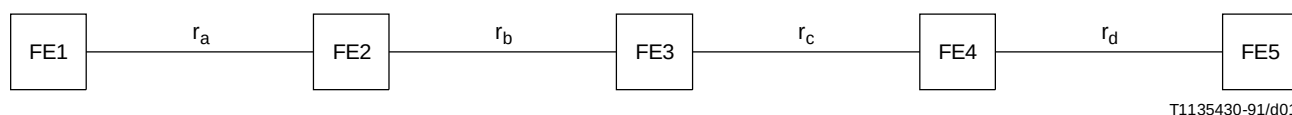


FIGURE 1-1/Q.87
Functional model

1.6.2 Description of the functional entities

The functional entities required by the UUS supplementary services in addition to those of the basic call as follows:

1.6.2.1 FE1

FE1 is the functional entity that serves the user and is responsible for initiating functional requests and interacting with network.

1.6.2.2 FE2

FE2 is the functional entity within the network that cooperate with their peers to provide the services requested by FE1 and FE5.

1.6.2.3 FE3

FE3 is the functional entity within the network that cooperate with their peers to provide the services requested by FE1 and FE5.

1.6.2.4 FE4

FE4 is the functional entity within the network that cooperate with their peers to provide the services requested by FE1 and FE5.

1.6.2.5 FE5

FE5 is the functional entity that serves the user and is responsible for initiating functional requests and interacting with network.

1.6.3 Relationship with a basic service

The relationship with a basic service is shown in Figure 1-2. The model for basic call handling is defined in Recommendation Q.71 [4].

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.

1.6.3.1 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).

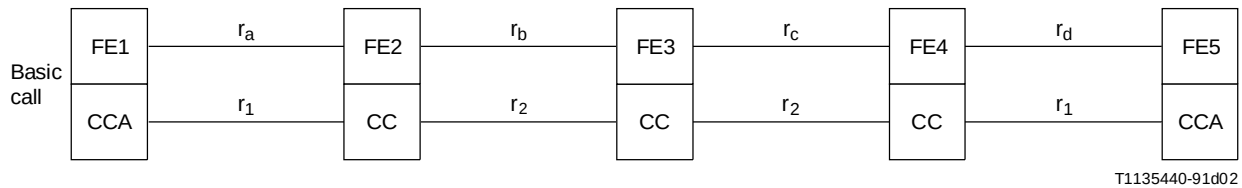


FIGURE 1-2/Q.87
Relationship of UUS with a basic service

1.6.3.2 Description of the call control (CC) functional entity

The CC functional entity supports the functionality to:

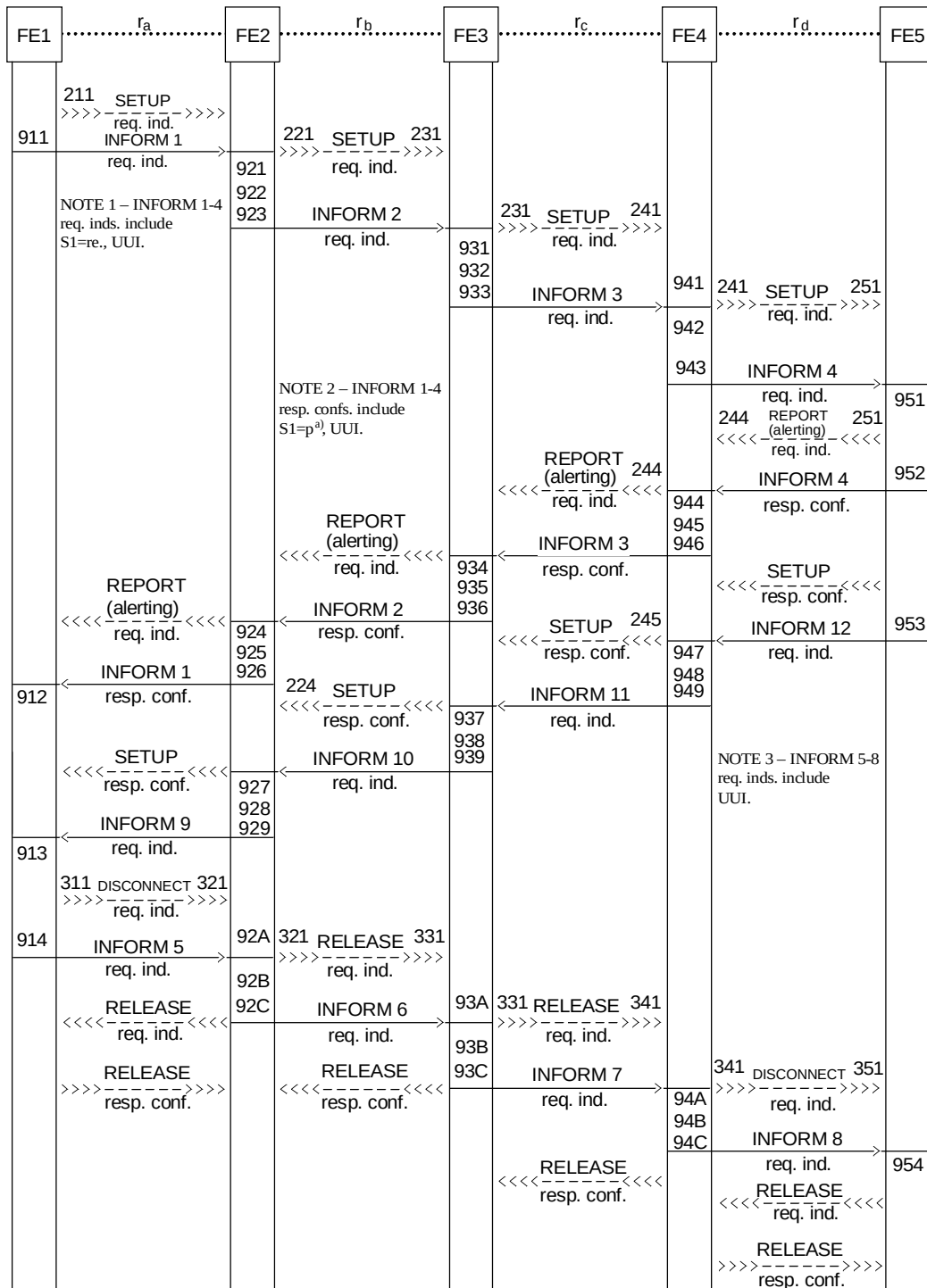
- a) establish, manipulate and release a single call (upon request of the CCA entity);
- b) associate and relate the CCA entities that are involved in a particular call and/or service;
- c) manage the relationship between the CCA entities involved in a call (i.e. reconcile and maintain the overall perspective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

1.7 Information flows

1.7.1 Information flow diagrams

Information flow diagrams for User-to-User Signalling service call setup, service usage and call release are shown in Figures 1-3 to 1-11.

- Figure 1-3 shows a successful use of UUS Service 1 in a point-to-point configuration;
- Figure 1-4 shows a successful use of UUS Service 1 in a point-to-multipoint configuration;
- Figure 1-5 shows a successful and an unsuccessful use of UUS Service 2 in a point-to-point configuration;
- Figure 1-6 shows an unsuccessful use of UUS Service 2 in a point-to-multipoint configuration;
- Figure 1-7 shows a successful and an unsuccessful use of UUS Service 3 request and essential;
- Figure 1-8 shows a successful and an unsuccessful use of UUS Service 3 requested but not essential;
- Figure 1-9 shows a successful and an unsuccessful use of UUS Service 3 requested during the active phase by the calling party;
- Figure 1-10 shows a successful and an unsuccessful use of UUS Service 3 requested during the active phase by the called party;
- Figure 1-11 shows a UUS service requested in a point-to-multipoint configuration.



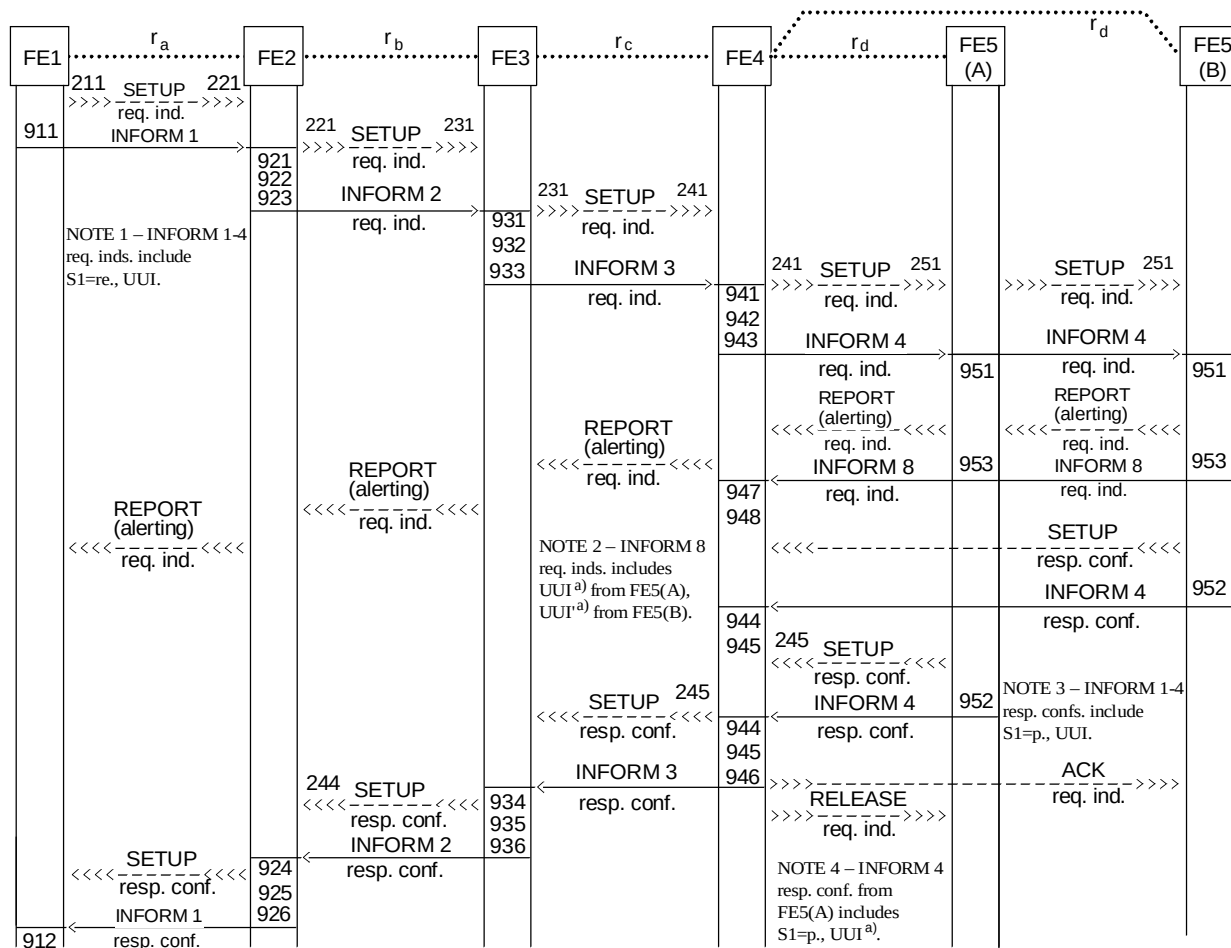
T1135450-91/d03

re. Requested and essential
p. Provided

a) This indication may be included in INFORM 8 req. ind. (with SETUP resp. conf.).

NOTE – Although not shown in this figure, the calling user is allowed to request Service 1 as not essential (i.e. rne.).

FIGURE 1-3/Q.87
UUS Service 1 - Successful case
Called user is point-to-point

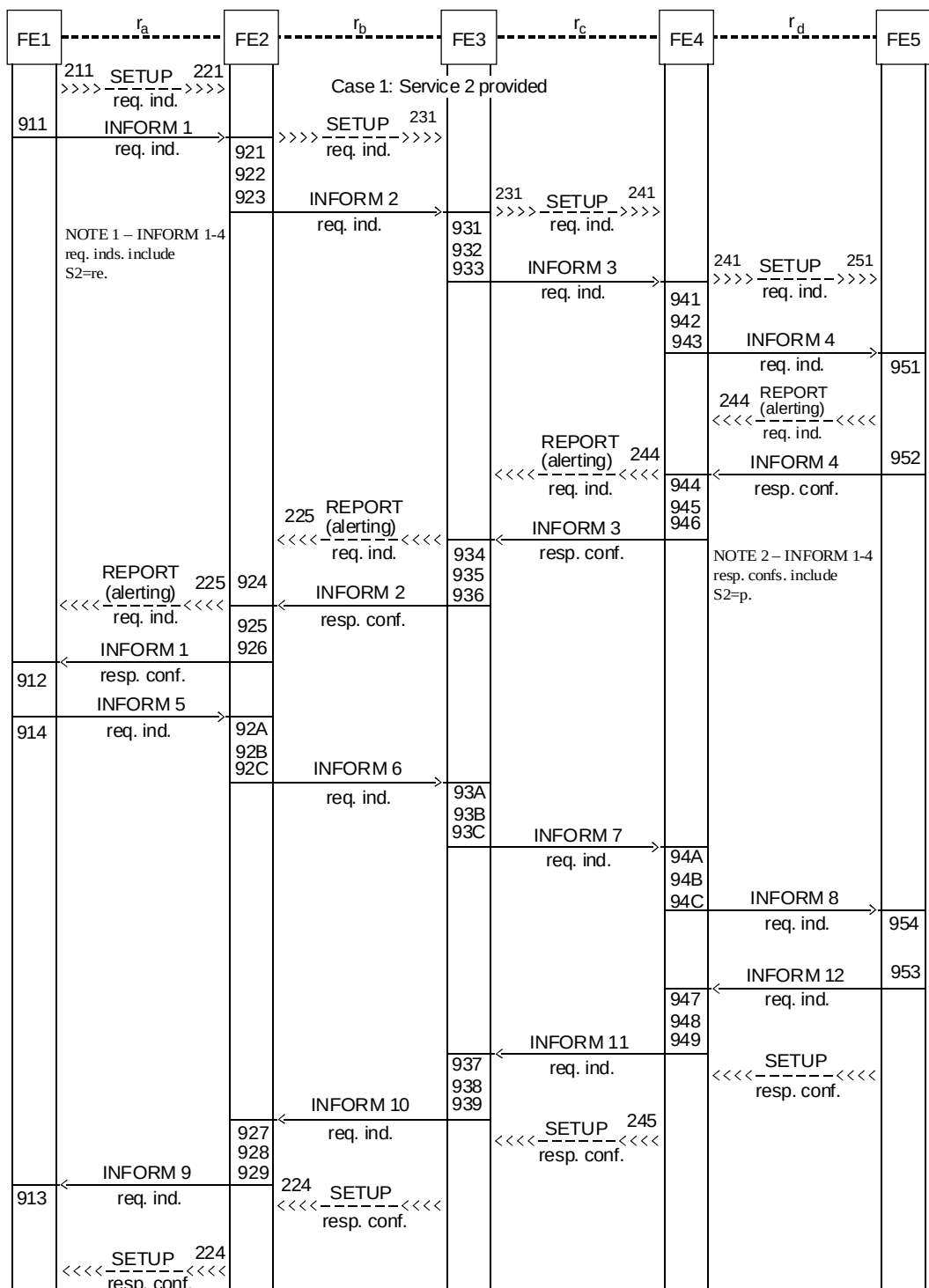


T1135460-91/d04

^{a)} In the case of point-to-multipoint configuration, INFORM 8 (include UUI, UUI^a) and INFORM 4 (include UUI) from the not-selected FE5(A) are discarded at FE4.

NOTE – Potential contention causes that UUI cannot be held in the REPORT.

FIGURE 1-4/Q.87
UUS Service 1
Called user is point-to-multipoint

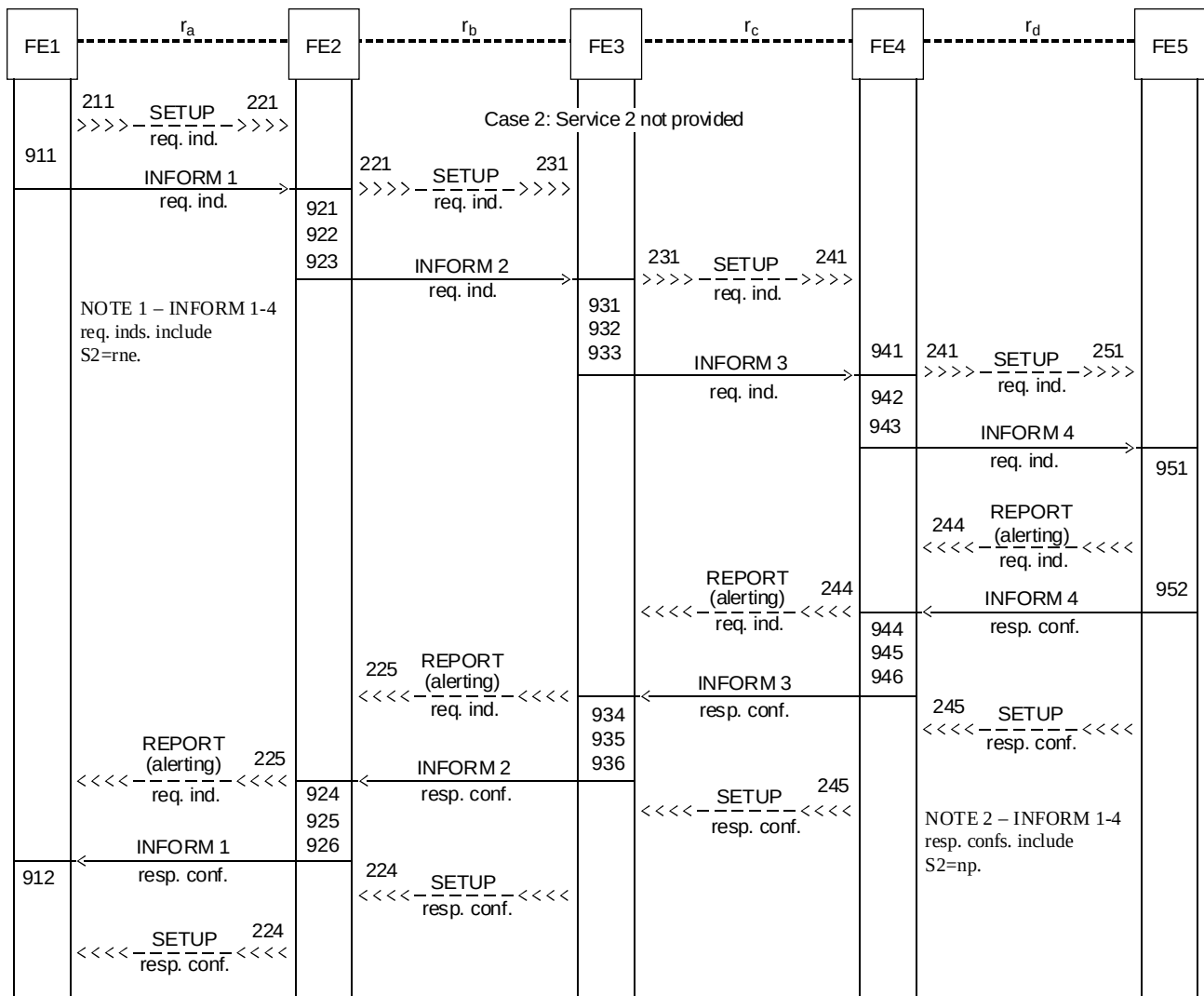


T1135470-91/d05

re. Requested and essential
p. Provided

FIGURE 1-5/Q.87 (sheet 1 of 2)

UUS Service 2 Called user is point-to-point

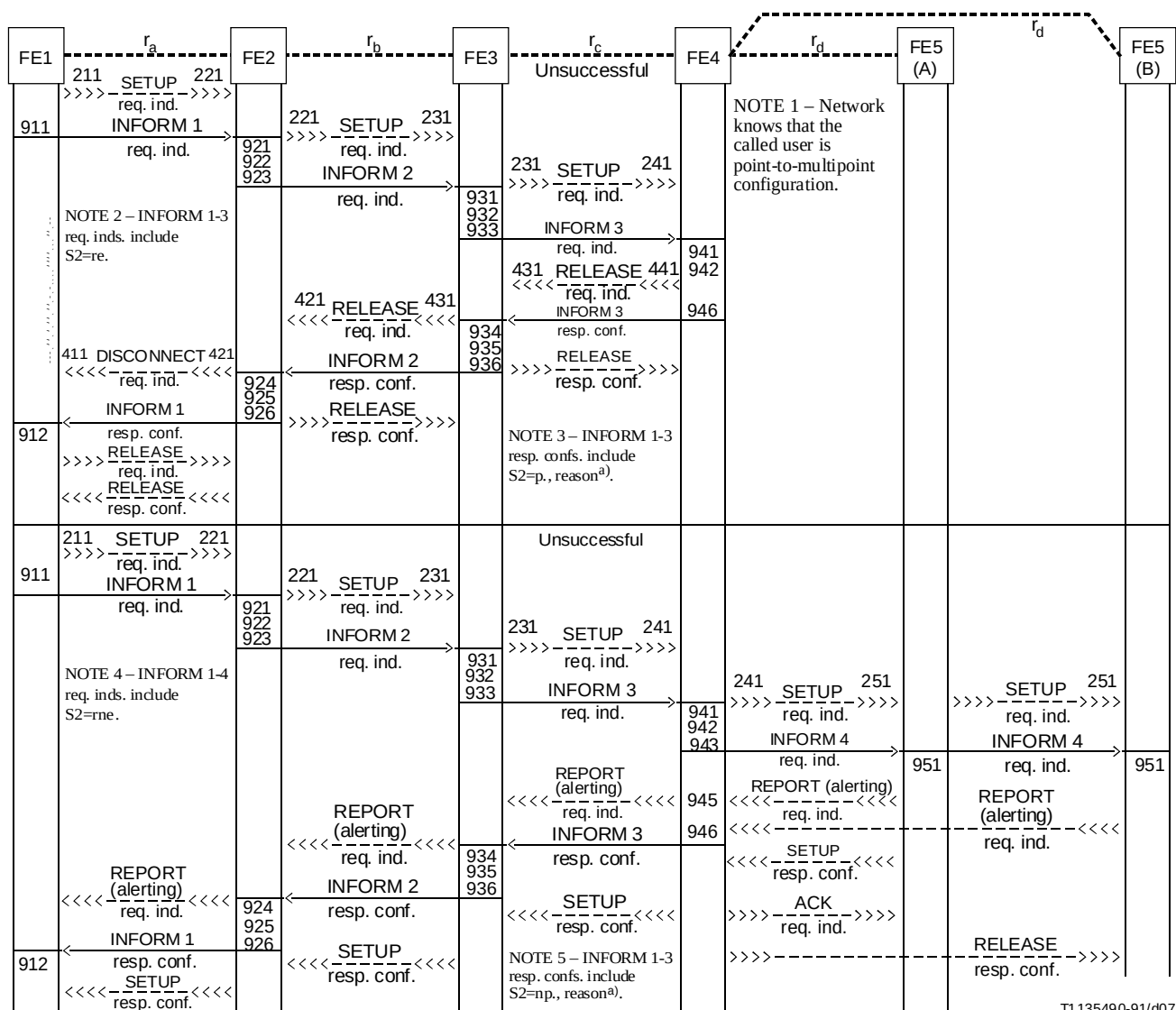


T1135480-91/d06

rne. Requested but not essential
np. Not provided

FIGURE 1-5/Q.87 (sheet 2 of 2)

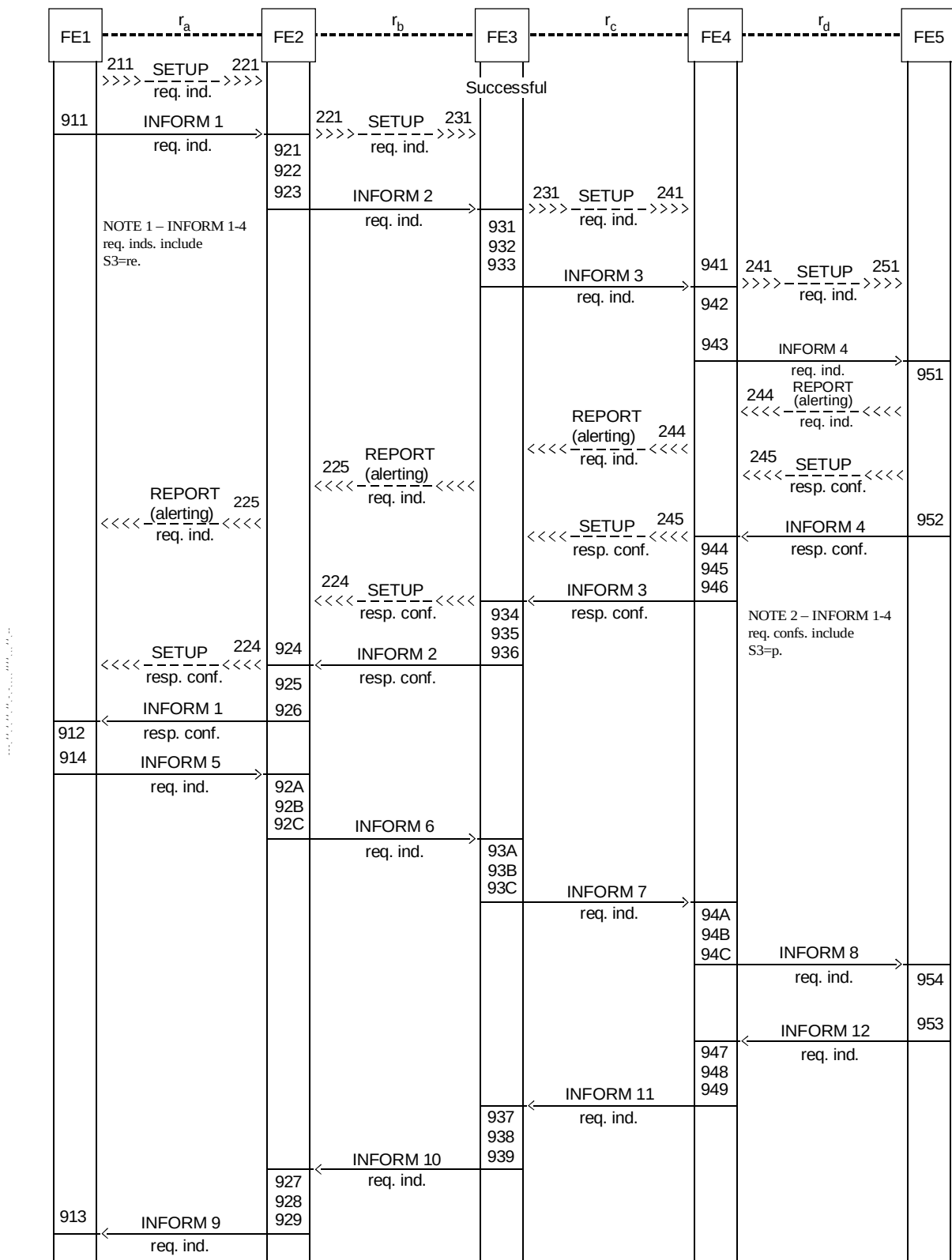
UUS Service 2
Called user is point-to-point



T1135490-91/d07

^a) The reason is “UUS Service 2” cannot be provided because called party has point-to-multipoint configuration.

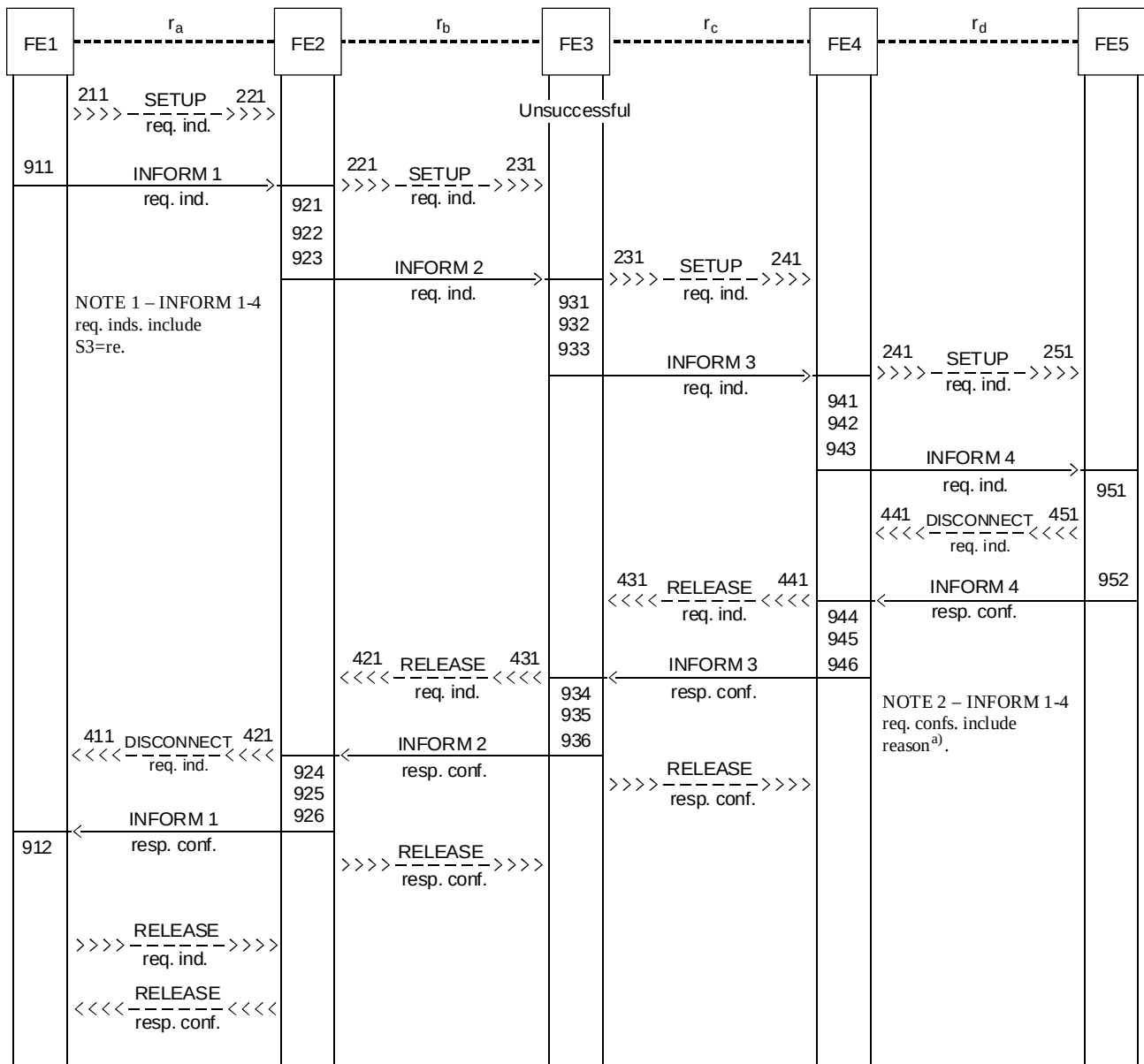
FIGURE 1-6/Q.87
UUS Service 2
Called user is point-to-multipoint



T1135500-91/d08

FIGURE 1-7/Q.87 (sheet 1 of 2)

UUS Service 3 S3 requested and essential

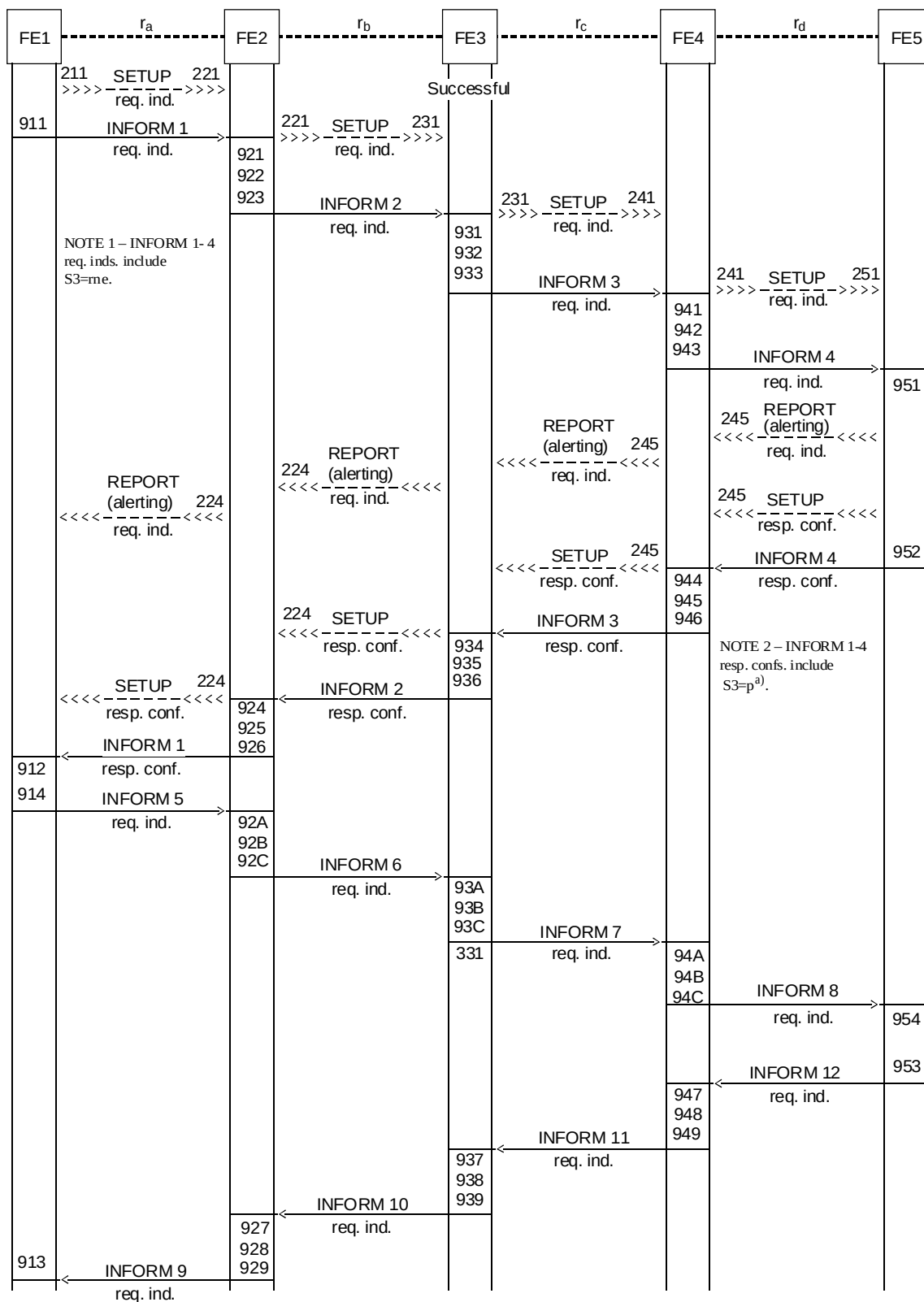


T1.135510-91/d09

^{a)} The reason is “this service cannot be provided by the called user”.

FIGURE 1-7/Q.87 (sheet 2 of 2)

UUS Service 3 S3 requested and essential

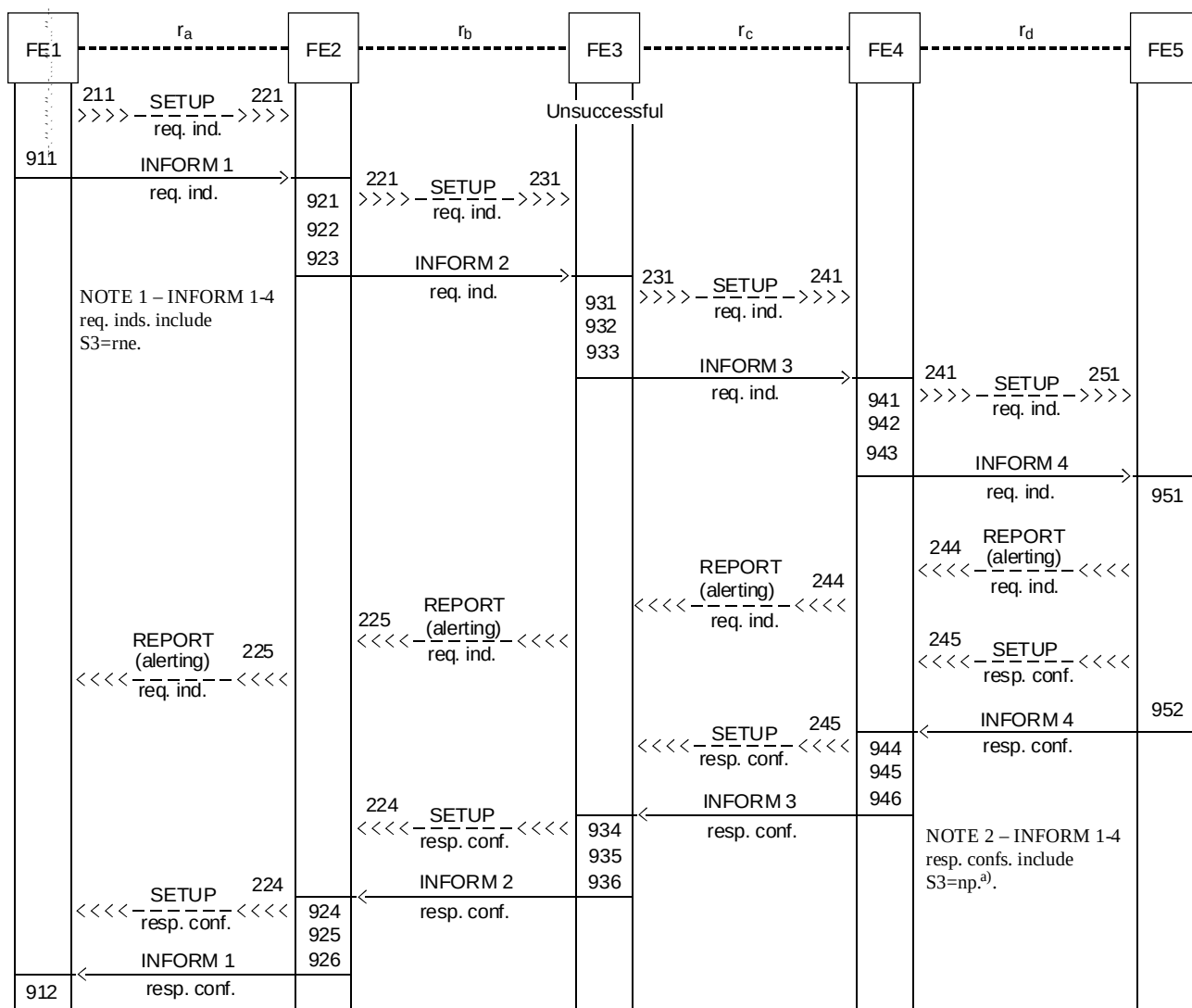


T1135520-91/d10

^{a)} INFORM 1-4 resp. conf. could be sent in REPORT (alerting) req. ind. information flow.

FIGURE 1-8/Q.87 (sheet 1 of 2)

UUS Service 3 S3 requested and not essential

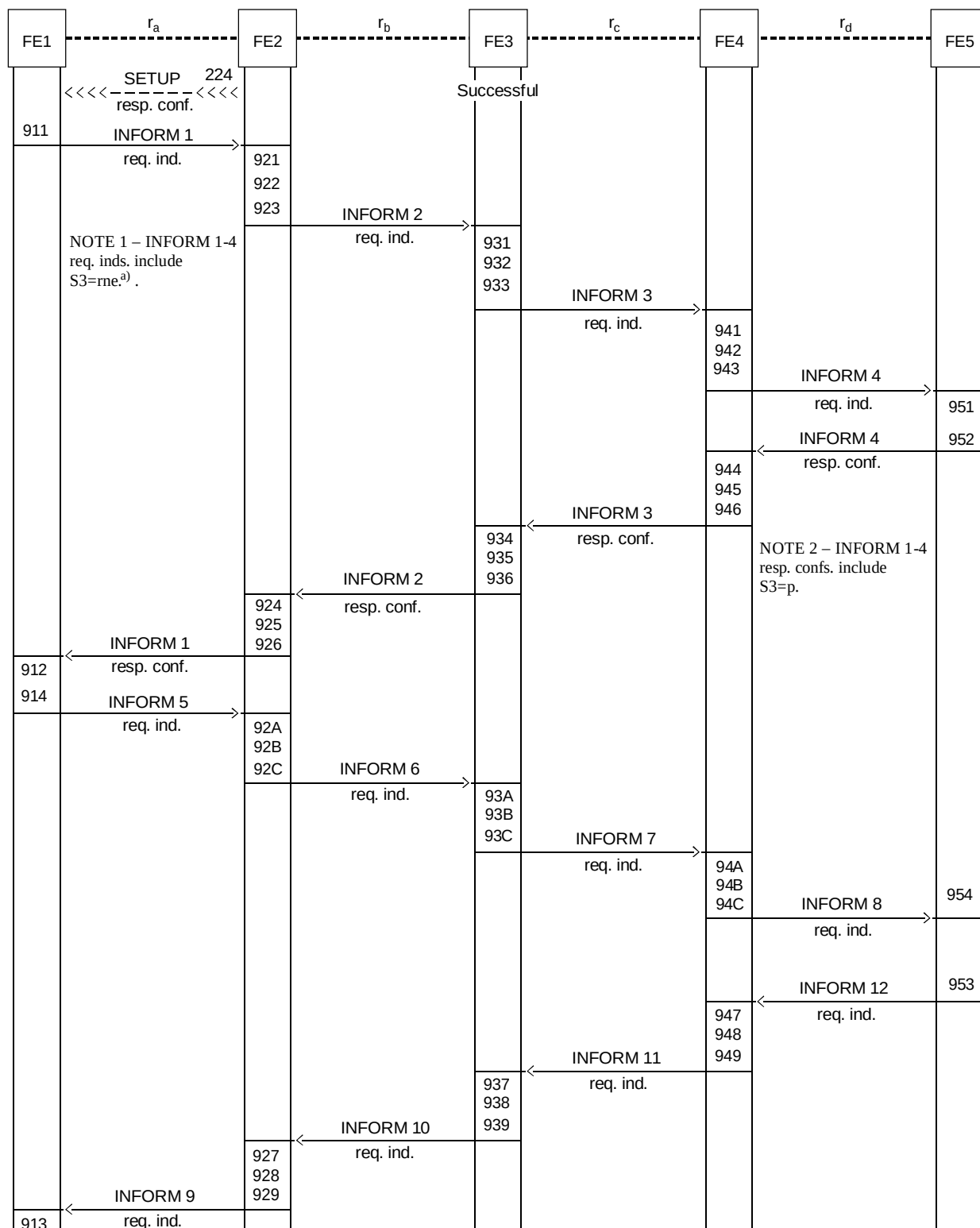


T1135530-91/d11

^{a)} INFORM 1-4 resp. conf. could be sent in REPORT (alerting) req. ind. information flow.

FIGURE 1-8/Q.87 (sheet 2 of 2)

UUS Service 3
S3 requested but not essential



T1135540-91/d12

^{a)} There are no essential requests during the active phase.

FIGURE 1-9/Q.87 (sheet 1 of 2)
UUS Service 3
Requested during active phase (by calling party)
S3 requested but not essential