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GENERAL RECOMMENDATIONS ON TELEPHONE SWITCHING AND SIGNALLING FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN

STAGE 2 DESCRIPTION FOR CHARGING SUPPLEMENTARY SERVICES

CLAUSE 2 – ADVICE OF CHARGE (AOC)

ITU-T Recommendation Q.86

(Previously “CCITT Recommendation”)

FOREWORD

The ITU-T (Telecommunication Standardization Sector) is a permanent organ of the International Telecommunication Union (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).

ITU-T Recommendation Q.86, clause 2, was revised by ITU-T Study Group 11 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 17th of October 1995.

NOTE

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 provides the stage 2 service description of the Advice of Charge supplementary service. This service allows the served user to be informed of usage-based charging information. The served user may request this information at call set-up time and/or during the call and/or at the end of the call.

STAGE 2 DESCRIPTION FOR CHARGING SUPPLEMENTARY SERVICES

(revised in 1995)

2 Advice of charge (AOC)

2.1 Scope

This Recommendation defines the stage 2 of the Advice of Charge (AOC) 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 [1]).

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

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 defines 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 telecommunication network that is not an ISDN.

The AOC supplementary service provides the served user with usage based charging information.

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

NOTE – This Recommendation is derived from the service descriptions specified in Recommendation I.256.2a (1993): “Advice of charge: Charging information at call set-up time (AOC-S)”, Recommendation I.256.2b (1993): “Advice of charge: Charging information during the call (AOC-D)” and Recommendation I.256.2c (1993): “Advice of charge: Charging information at the end of the call (AOC-E)”.

This Recommendation is applicable to the stage 3 standards for the AOC supplementary services.

2.2 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] CCITT Recommendation I.130 (1988), *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*.
- [2] CCITT Recommendation Q.65 (1988), *Stage 2 of the method for the characterization of services supported by an ISDN*.
- [3] ITU-T Recommendation I.112 (1993), *Vocabulary of terms for ISDNs*.
- [4] ITU-T Recommendation I.210 (1993), *Principles of telecommunication services supported by an ISDN and the means to describe them*.
- [5] CCITT Recommendation E.164 (1991), *Numbering plan for the ISDN era*.
- [6] ITU-T Recommendation Z.100 (1993), *CCITT Specification and Description Language (SDL)*.
- [7] CCITT Recommendation Q.71 (1993), *ISDN 64 kbit/s circuit mode switched bearer service*.



2.3 Definitions

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

- 2.3.1 advice of charge (AOC):** Information about usage-based charging.
- 2.3.2 charged number:** The number which shall be charged for the call.
- 2.3.3 dialled number:** The destination for the charged call.
- 2.3.4 integrated services digital network (ISDN):** See definition 308 of 2.3/I.112 [3].
- 2.3.5 ISDN number:** A number conforming to the numbering plan and structure specified in Recommendation E.164 [5].
- 2.3.6 service; telecommunication service:** See definition 201 of 2.2/I.112 [3].
- 2.3.7 supplementary service:** See 2.4/I.210 [4].

2.4 Symbols and abbreviations

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

AOC	Advice of Charge
CD	Call Deflection
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CT	Call Transfer
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
TP	Terminal Portability

2.5 Description

Advice of Charge (AOC) is a group of supplementary services allowing the served user to be informed of usage-based charging information.

These supplementary services are not meant to replace the charge metering inside the network which is considered to be the correct one in all cases.

The AOC group of supplementary services may include the following:

- AOC-S Charging information at call set-up time
- AOC-D Charging information during the call
- AOC-E Charging information at the end of a call

2.6 Derivation of a functional model

2.6.1 Functional model description

The functional model for the AOC supplementary service is shown in Figure 2-1.

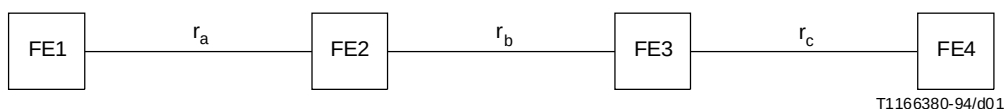


FIGURE 2-1/Q.86

2.6.2 Description of the functional entities

- FE1 AOC served entity
- FE2 AOC information options check
- FE3 AOC controlling entity
- FE4 AOC information formatting

2.6.3 Relationship with a basic service

The relationship with a basic service is shown in Figure 2-2.

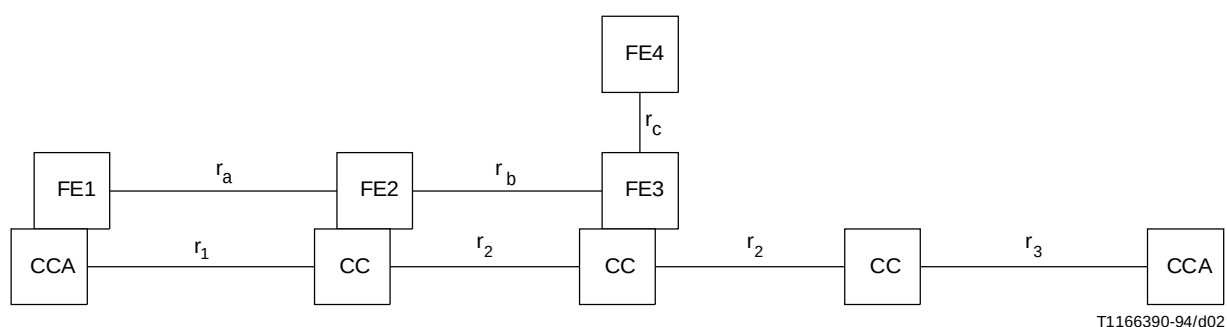


FIGURE 2-2/Q.86

2.7 Information flows

2.7.1 Information flow diagrams

It is assumed that the coding of the AOC-Information is done in such a way that whenever this information is received by a FE1, the content shall be complete in itself.

The flows are intended to show the information flowing for the AOC supplementary service. These flows can in many cases, be combined with the flows for the basic call, depending upon call state. Whether or not this can take place is considered to be a stage 3 matter.

2.7.1.1 Information flows for charging information at call set-up time (AOC-S)

2.7.1.1.1 Receipt of charging information on charging rates (AOC-S)

See Figure 2-3.

2.7.1.1.2 Change of charging rate during the active state of a call (AOC-S)

See Figure 2-4.

2.7.1.1.3 Receipt of charging rate after TP RETRIEVE (AOC-S)

See Figure 2-5.

NOTE – The TP RETRIEVE function is a part of the Terminal Portability (TP) supplementary service and the corresponding FEA numbers refer to this service.

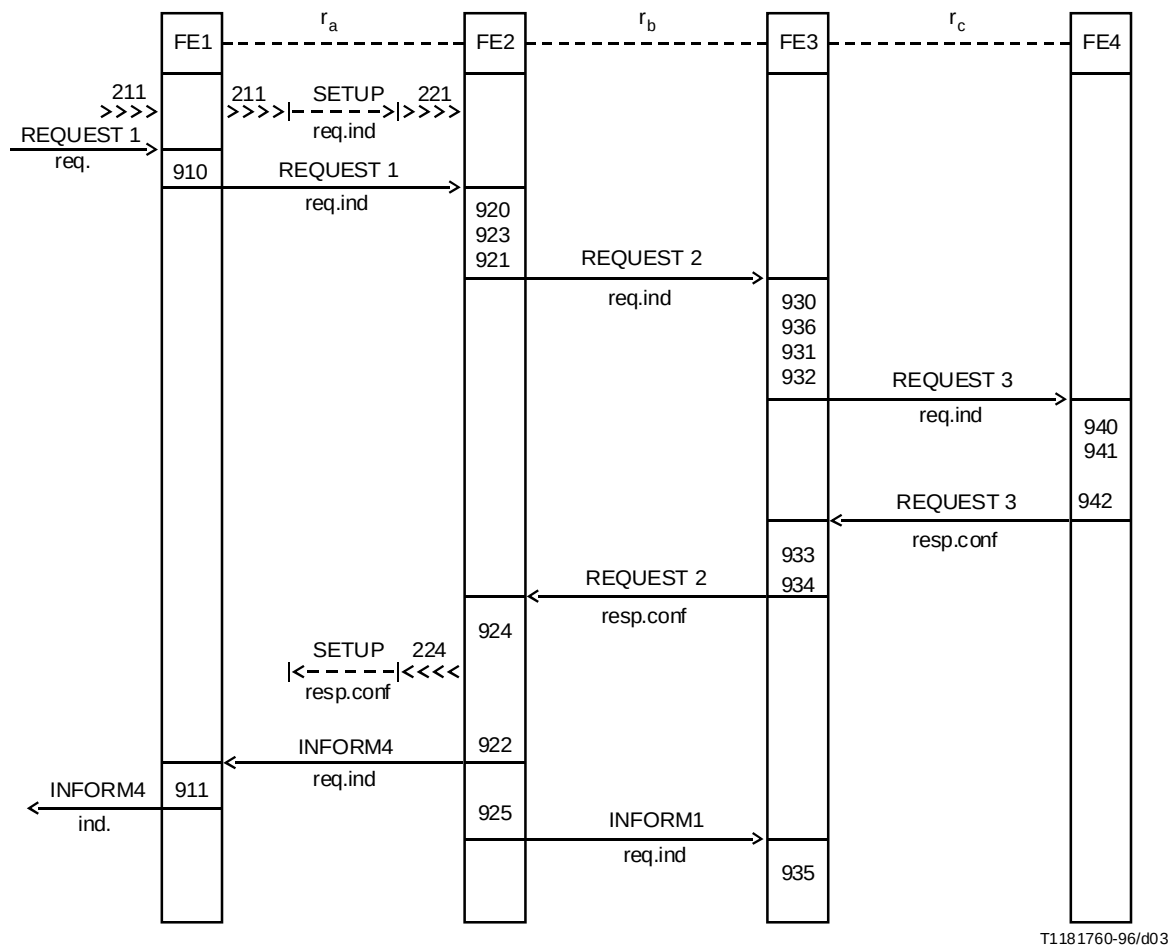


FIGURE 2-3/Q.86

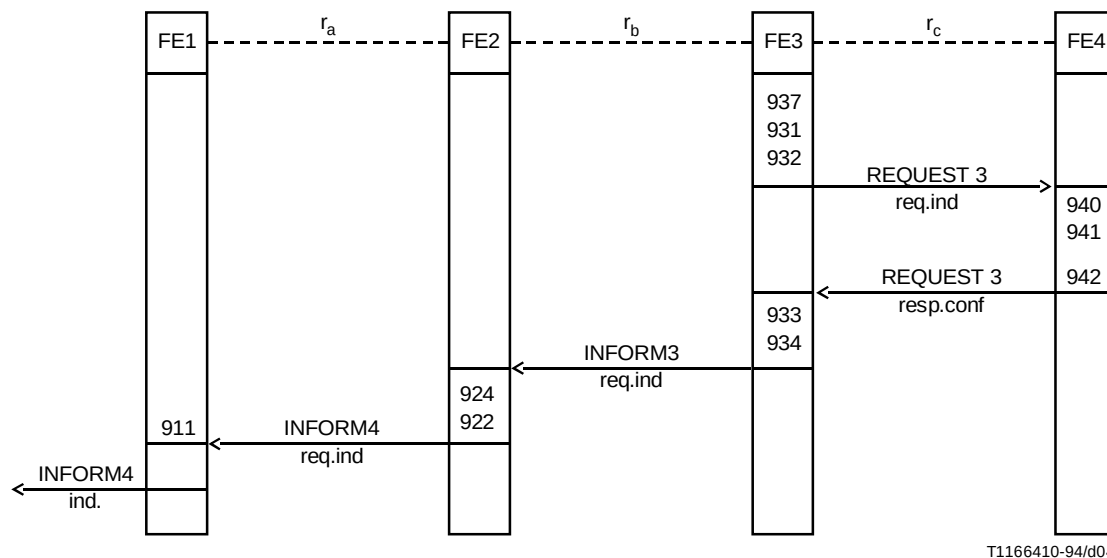


FIGURE 2-4/Q.86

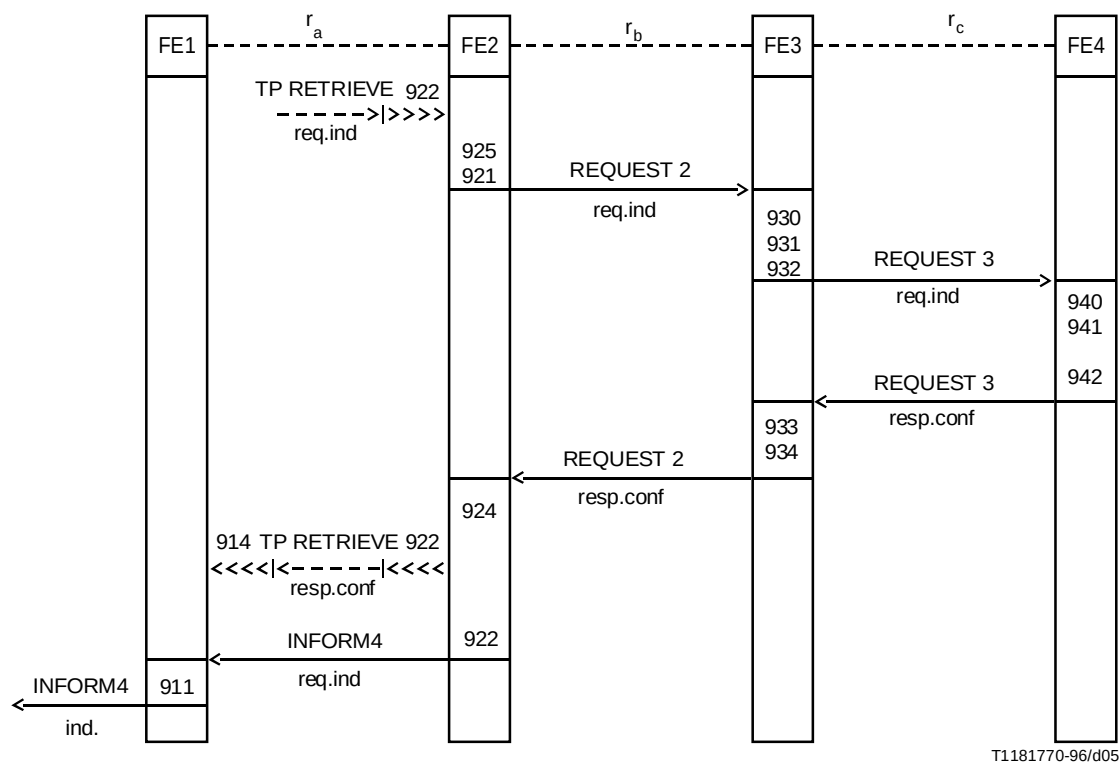


FIGURE 2-5/Q.86

2.7.1.2 Information flows for charging information during a call (AOC-D)

2.7.1.2.1 Transfer of charging information at call establishment (AOC-D)

See Figure 2-6.

2.7.1.2.2 Transfer of charging information during the active state of a call (AOC-D)

See Figure 2-7.

2.7.1.2.3 Transfer of charging information at TP HOLD (AOC-D)

See Figure 2-8.

NOTE – The TP HOLD function is a part of the Terminal Portability (TP) supplementary service and the corresponding FEA numbers refer to this service.

2.7.1.2.4 Transfer of charging information at TP RETRIEVE (AOC-D)

See Figure 2-9.

NOTES

1 The TP RETRIEVE function is a part of the Terminal Portability (TP) supplementary service and the corresponding FEA numbers refer to this service.

2 In the case that the called party clears the call during calling party TP-HOLD state, the INFORM2 shall be associated with the TP REJECT information flow.

2.7.1.2.5 Transfer of charging information at call clearing (AOC-D)

2.7.1.2.5.1 Call clearing in forward direction

See Figure 2-10.

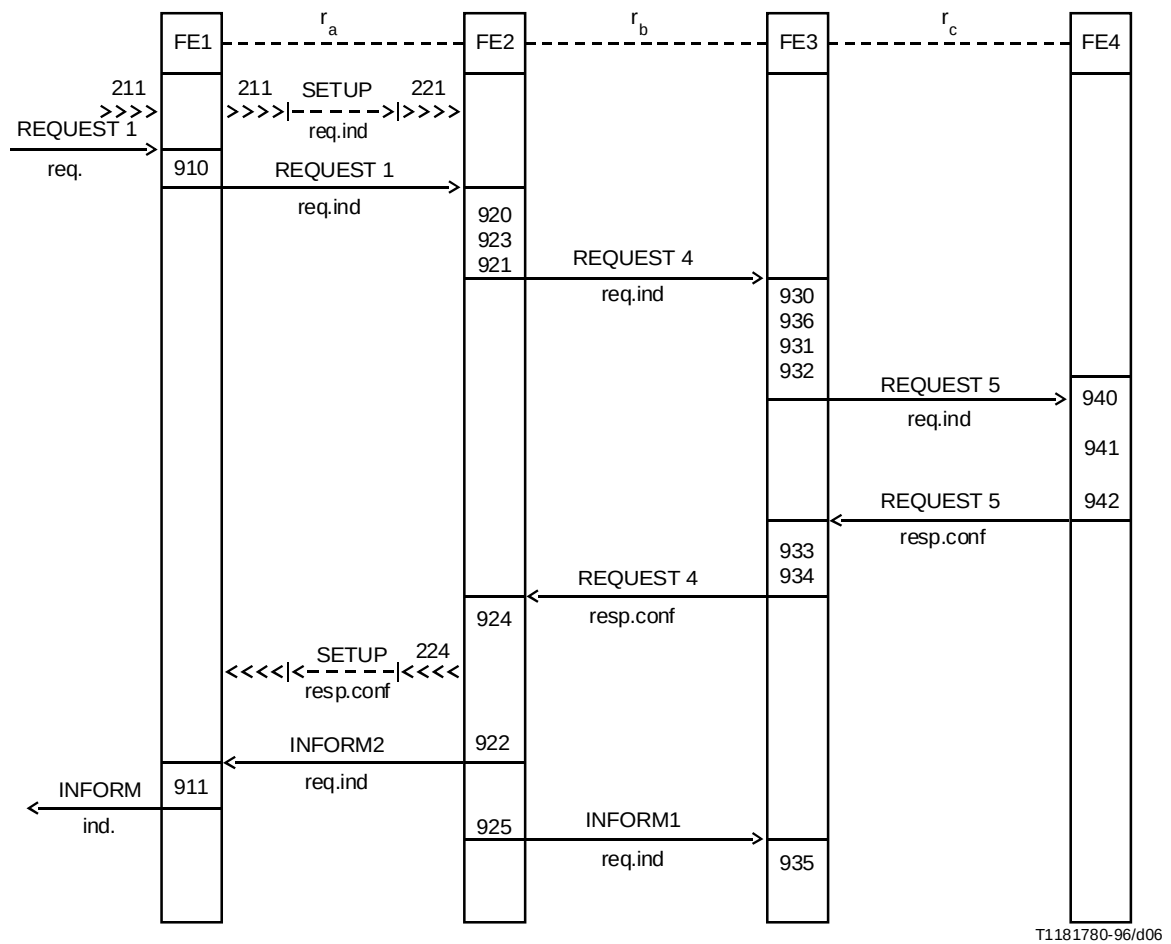


FIGURE 2-6/Q.86

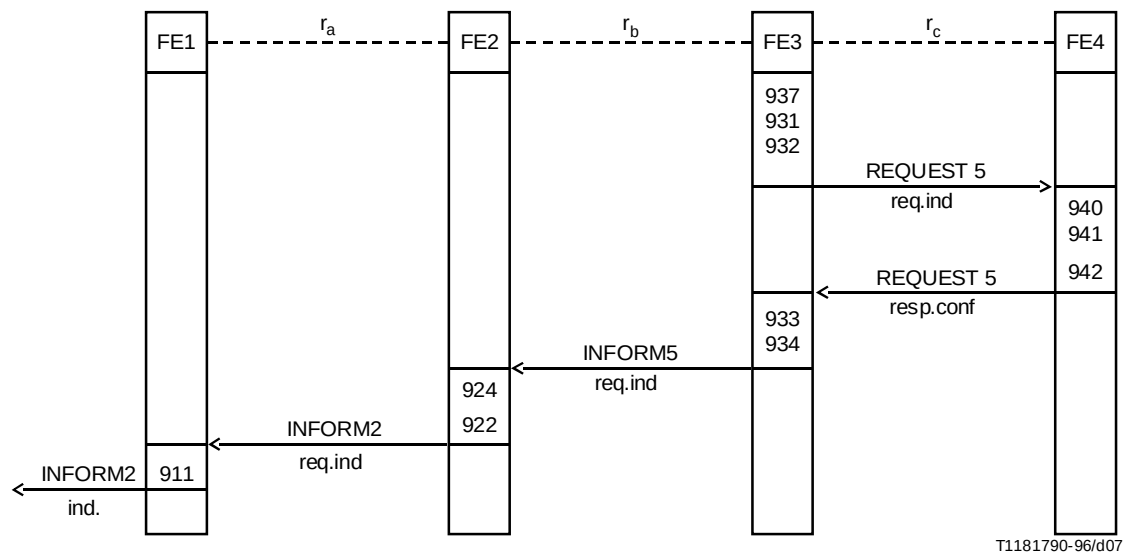


FIGURE 2-7/Q.86

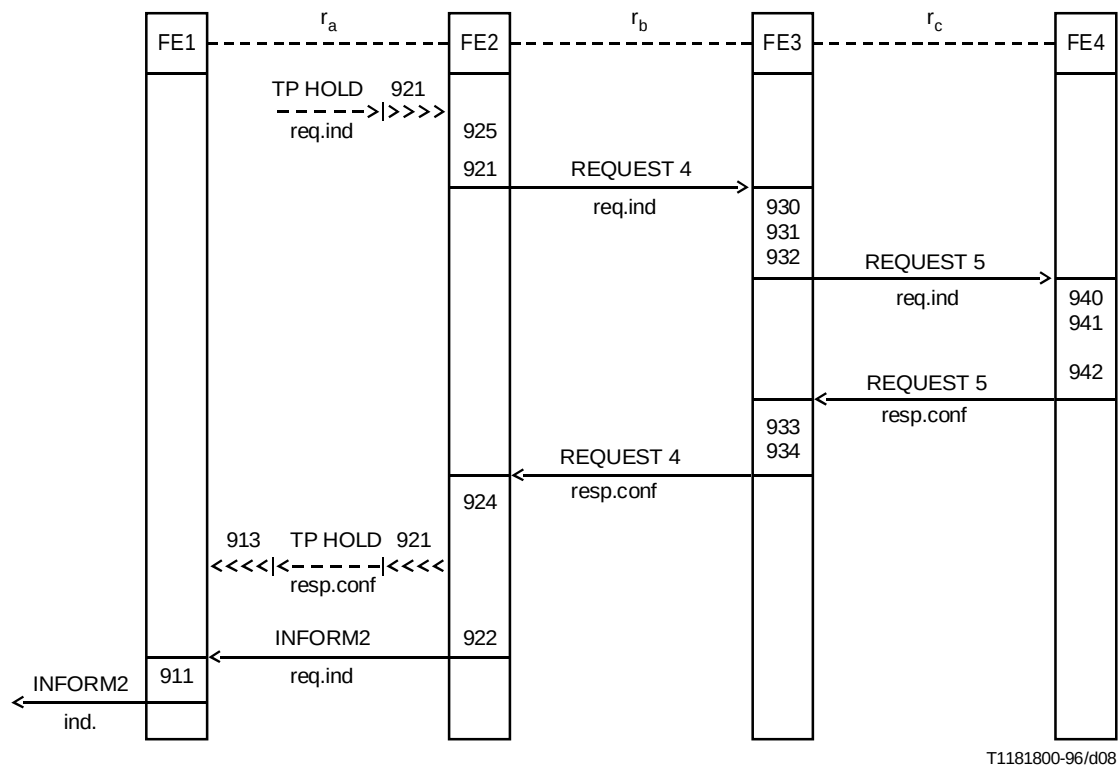


FIGURE 2-8/Q.86

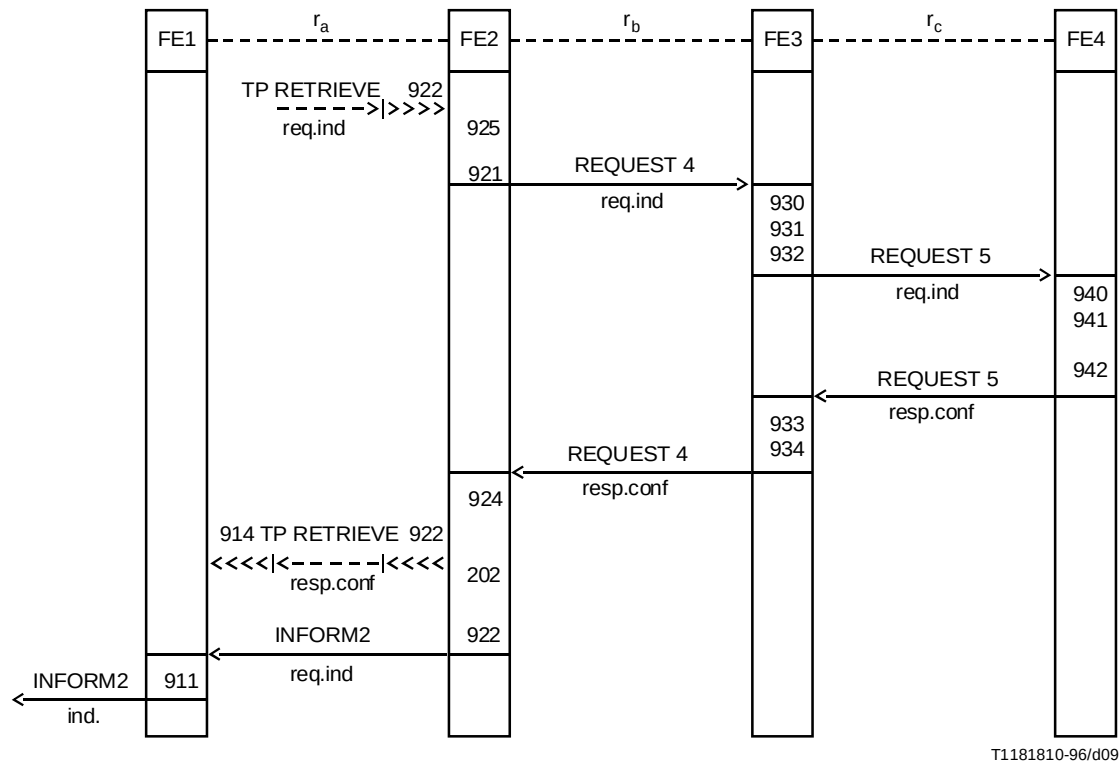


FIGURE 2-9/Q.86

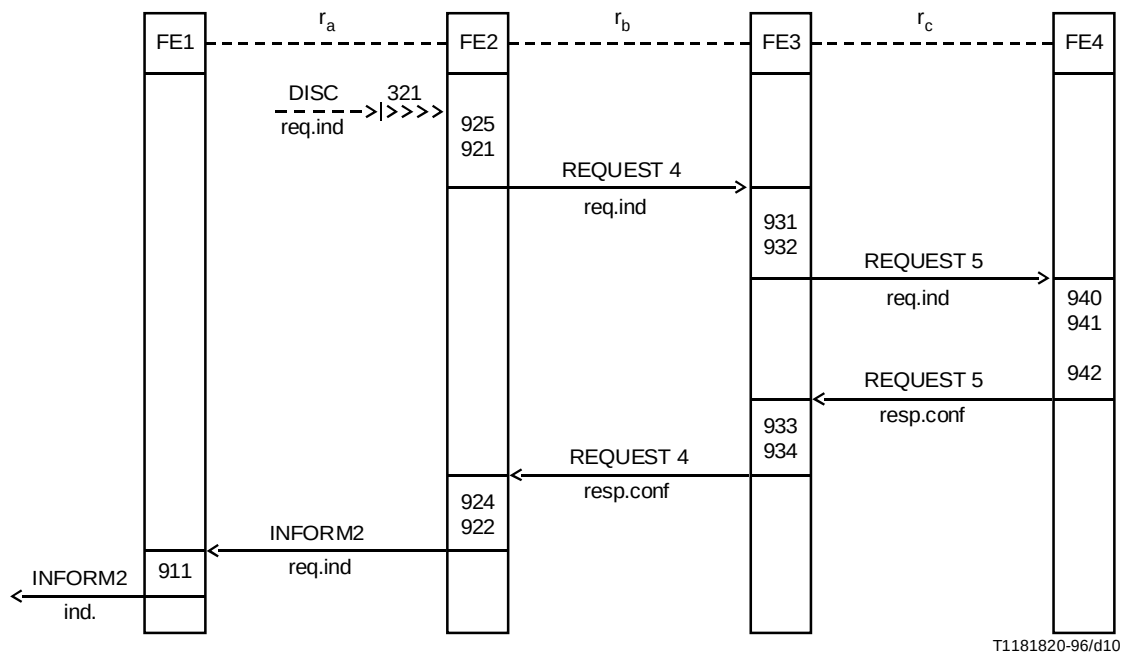


FIGURE 2-10/Q.86

2.7.1.2.5.2 Call clearing in backward direction

See Figure 2-11.

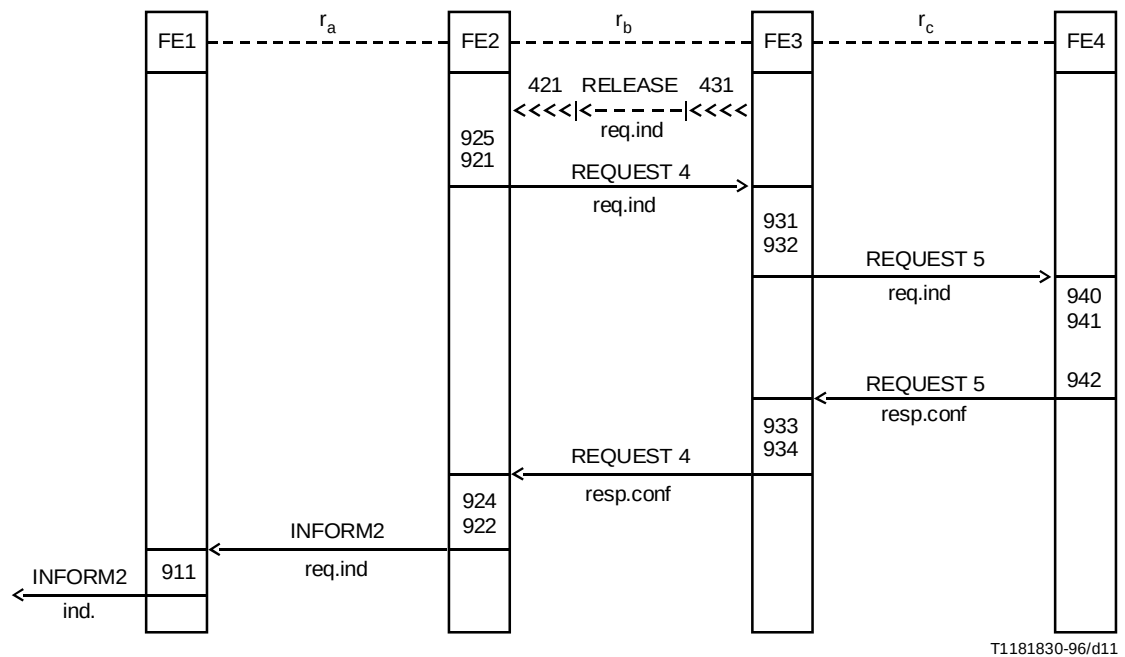


FIGURE 2-11/Q.86

2.7.1.3 Information flows for charging information at the end of a call (AOC-E)

2.7.1.3.1 Request for AOC-E at call set-up time (AOC-E)

See Figure 2-12.

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