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Digitalno omrežje z integriranimi storitvami (ISDN) - Dopolnilna storitev: preusmeritev klica, ko ni odziva (CFNR) - Funkcijske zmožnosti in informacijski tokovi

Integrated Services Digital Network (ISDN); Call Forwarding No Reply (CFNR) supplementary service; Functional capabilities and information flows

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Integrated Services Digital Network (ISDN); Call Forwarding No Reply (CFNR) supplementary service Functional capabilities and information flows

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

In accordance with CCITT Recommendation I.130, the following three level structure is used to described the supplementary telecommunication services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (ISDN):

- Stage 1: is an overall service description, from the user's standpoint;

- Stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and

- Stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

This ETS details the stage 2 aspects (functional capabilities and information flows) needed to support the Call Forwarding No Reply (CFNR) supplementary service. The stage 1 and stage 3 aspects are detailed in ETS 300 201 (1994) and ETS 300 207-1 (1994), respectively.

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	31 March 1995
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	30 September 1995
Date of withdrawal of any conflicting National Standard (dow):	30 September 1995a

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1 Scope

This European Telecommunication Standard (ETS) defines the stage two of the Call Forwarding No Reply (CFNR) supplementary service for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators. Stage two identifies the functional capabilities and the information flows needed to support the stage one service description. The stage two description also identifies user operations not directly associated with a call (see CCITT Recommendation I.130 [3]).

This ETS is specified according to the methodology defined in CCITT Recommendation Q.65 [6].

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

In addition this ETS does not specify the requirements where the service is provided to the user via a private ISDN. This ETS does not specify the requirements for the allocation of defined Functional Entities (FEs) within a private ISDN; it does, however, define which FEs may be allocated to a private ISDN.

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

The CFNR supplementary service enables a served user to have the network redirect to another user calls which are addressed to the served user's ISDN number and for which the connection is not established within a defined period of time. The CFNR supplementary service may operate on all calls, or just those associated with specified basic services. The served user's ability to originate calls is unaffected by the CFNR supplementary service.

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

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This ETS is applicable to the stage three standards for the ISDN CFNR supplementary service. The term "stage three" is also defined in CCITT Recommendation I.130 [3]. Where the text indicates the status of a requirement, i.e. as strict command or prohibition, as authorization leaving freedom, as a capability or possibility, this shall be reflected in the text of the relevant stage three standards.

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Furthermore, conformance to this ETS is met by conforming to the stage three standards with the field of application appropriate to the equipment being implemented. Therefore, no method of testing is provided for this ETS.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".

[2] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".

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

[4] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".

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[5] CCITT Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".

[6] CCITT Recommendation Q.65 (1988): "Stage 2 of the method for the characterization of services supported by an ISDN".

[7] CCITT Recommendation Q.71 (1988): "ISDN 64 kbit/s circuit mode switched bearer service".

[8] CCITT Recommendation Z.100 (1988): "Specification and Description Language (SDL)".

[9] ETS 300 201: "Integrated Services Digital Network (ISDN); Call Forwarding No Reply (CFNR) supplementary service; Service description".

3 Definitions

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

address: See CCITT Recommendation E.164 [1], clause 12.

basic service: See CCITT Recommendation Q.9 [5], definition 7018.

connected number: The ISDN number of the final destination (user C).

forwarded-to address: The address to which a call has been forwarded.

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Forwarded-To Number (FTN): The ISDN number to which a call has been forwarded.

forwarded-to user: A user to whom the call is redirected as a result of forwarding.

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forwarding cause: Parameter which contains the reason for the forwarding, e.g. due to the Call Forwarding Busy (CFB) supplementary service, the Call Forwarding Unconditional (CFU) supplementary service, the CFNR supplementary service, or the Call Deflection (CD) supplementary service.

forwarding indicator: Indicator showing that call has been forwarded and indicating whether this information should be given to calling user.

forwarding number: The ISDN number of the served user.

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [2], definition 308.

ISDN number: A number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [1].

originally called number: The ISDN number of user B.

Presentation Indicator (PI): Indicator showing whether the FTN should be presented to the calling user, as derived from the Connected Line Identification Restriction (COLR) supplementary service of user C.

served user: The user to whom the CFNR supplementary service is provided.

service; telecommunication service: See ITU-T Recommendation I.112 [2], definition 201.

supplementary service: See ITU-T Recommendation I.210 [4], subclause 2.4.

user A: The calling user in a call which is subject to diversion.

user B: The served user when a call (from user A) is subject to the CFNR supplementary service.

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user C: The forwarded-to user in a call which is subject to the CFNR supplementary service. In the case of a call which is subject to multiple diversions, user C is the forwarded-to user with respect to the final call forwarding.

4 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

CC	Call Control
CCA	Call Control Agent
CD	Call Deflection
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
COLR	Connected Line Identification Restriction
FE	Functional Entity
FEA	Functional Entity Action
FTN	Forwarded-to Number
ISDN	Integrated Services Digital Network
LE	Local Exchange
NDUB	Network Determined User Busy
NSO	Notification Subscription Option
PI	Presentation Indicator
PTNX	Private Telecommunication Network eXchange
SCE	Service Control Entity
SCM	Service Control Model
SDL	Specification and Description Language
SSC	Supplementary Service Control
TE	Terminal Equipment

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5 Description

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The general description of the CFNR supplementary service is specified in ETS 300 201 [9], clause 5.

6 Derivation of the functional model

6.1 Functional model description

The functional model for the CFNR supplementary service is shown in figure 1.

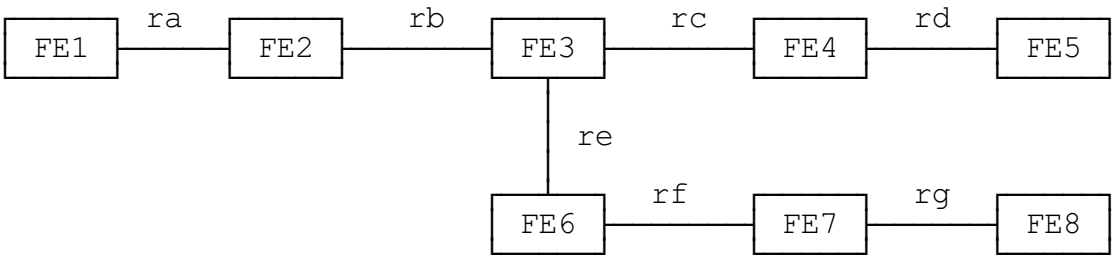

Figure 1: Functional model

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6.2 Description of the FEs

The FEs required by the CFNR supplementary service in addition to those of the basic call are as follows:

FE1: Calling user's service agent;
FE2: Calling user's service control entity (SCE);
FE3: Call forwarding execution entity;
FE4: Call forwarding detection and control entity;
FE5: Served user's service agent;
FE6: Interface controlling entity;
FE7: Forwarded-to user's SCE;
FE8: Forwarded-to user's service agent.

6.3 Relationship with a basic service

Relationship with a basic service is shown in figure 2.

NOTE: The basic call model is defined in CCITT Recommendation Q.71 [7], § 2.1, with the exception that r1 represents an outgoing call relationship from a Call Control Agent (CCA) and r3 represents an incoming call relationship to a CCA.

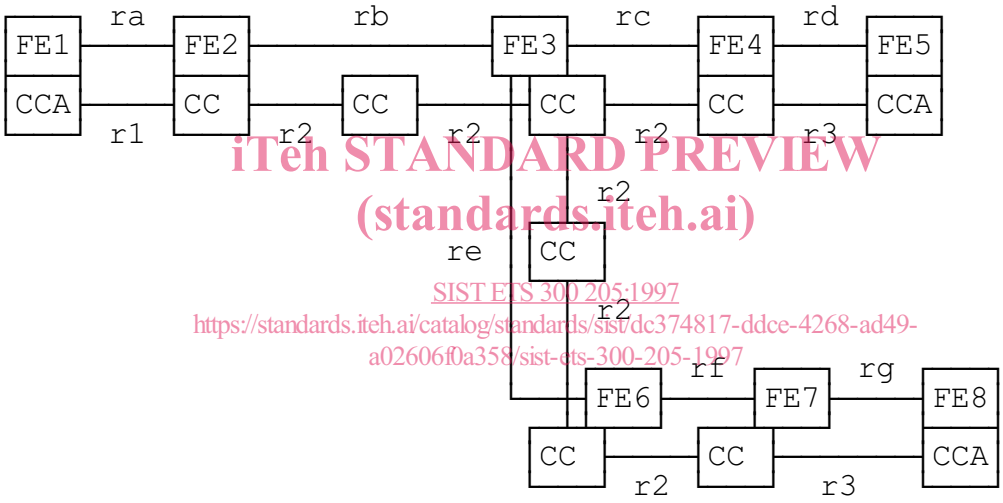

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Figure 2: Relationship with a basic service

7 Information flows

7.1 Information flow diagrams

Figures 3 to 8 contain the information flows for the CFNR supplementary service.

The following notes are related to figures 3 to 8.

NOTE 1: The INFORM5 req.ind is not later presented to FE8 than the associated SETUP req.ind.

NOTE 2: In case of:
- temporary mode of the COLR supplementary service activated at user C; or
- immediately responding terminal at user C,

the value of PI is determined on receipt of SETUP resp.conf from FE8.

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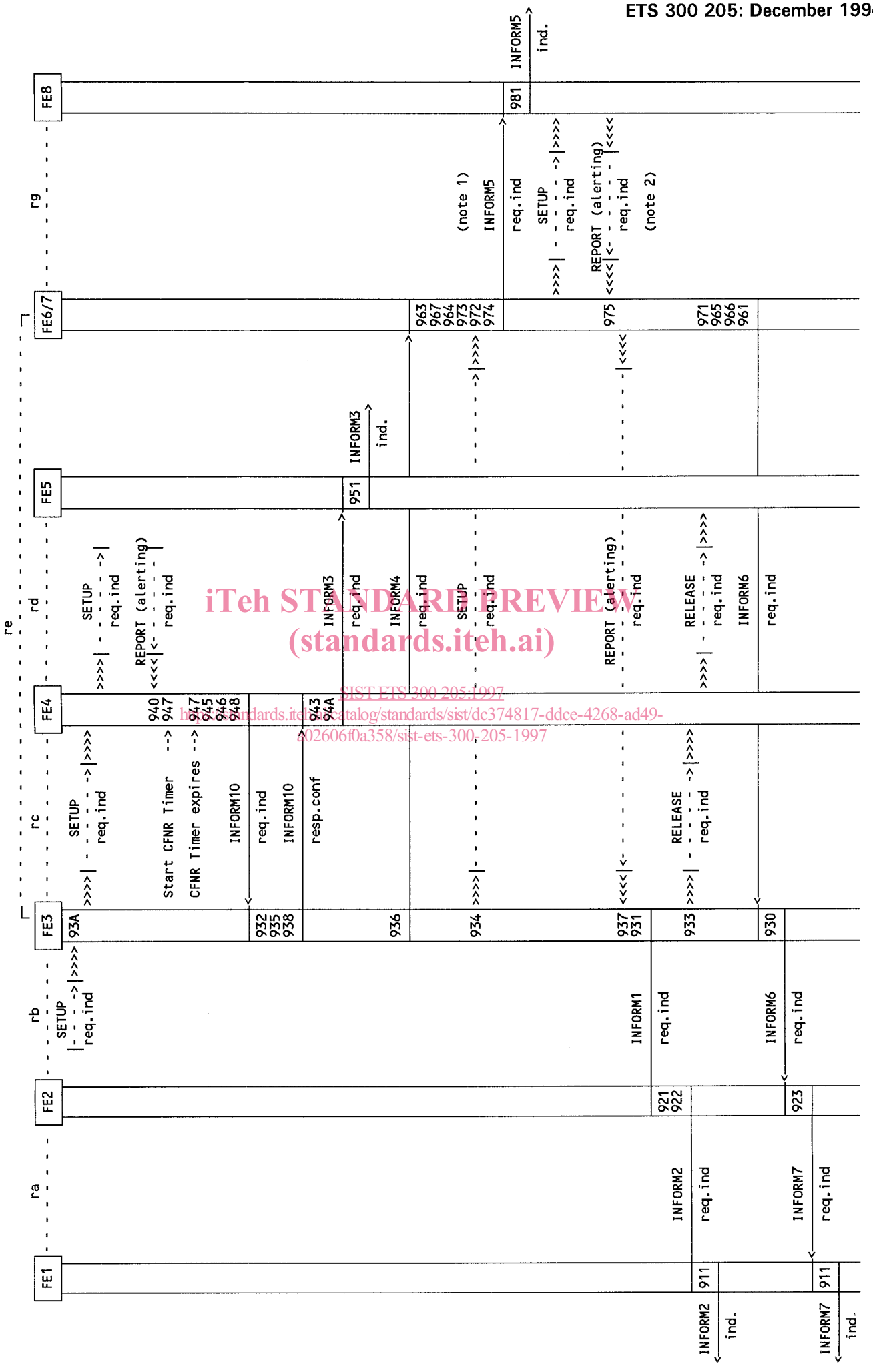

Figure 3: CFNR supplementary service, option A, late release

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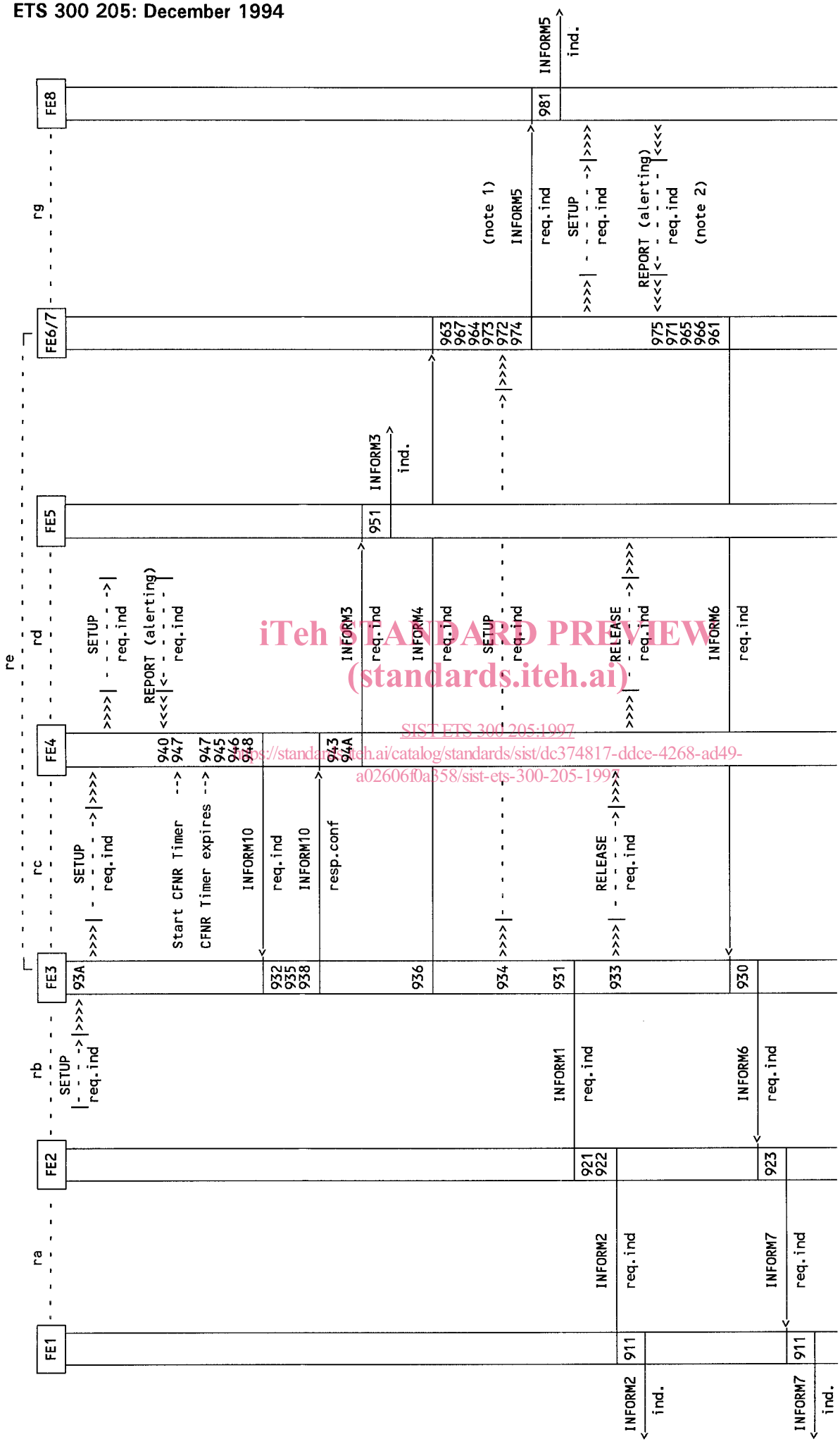

Figure 4: CFNR supplementary service, option B, early release

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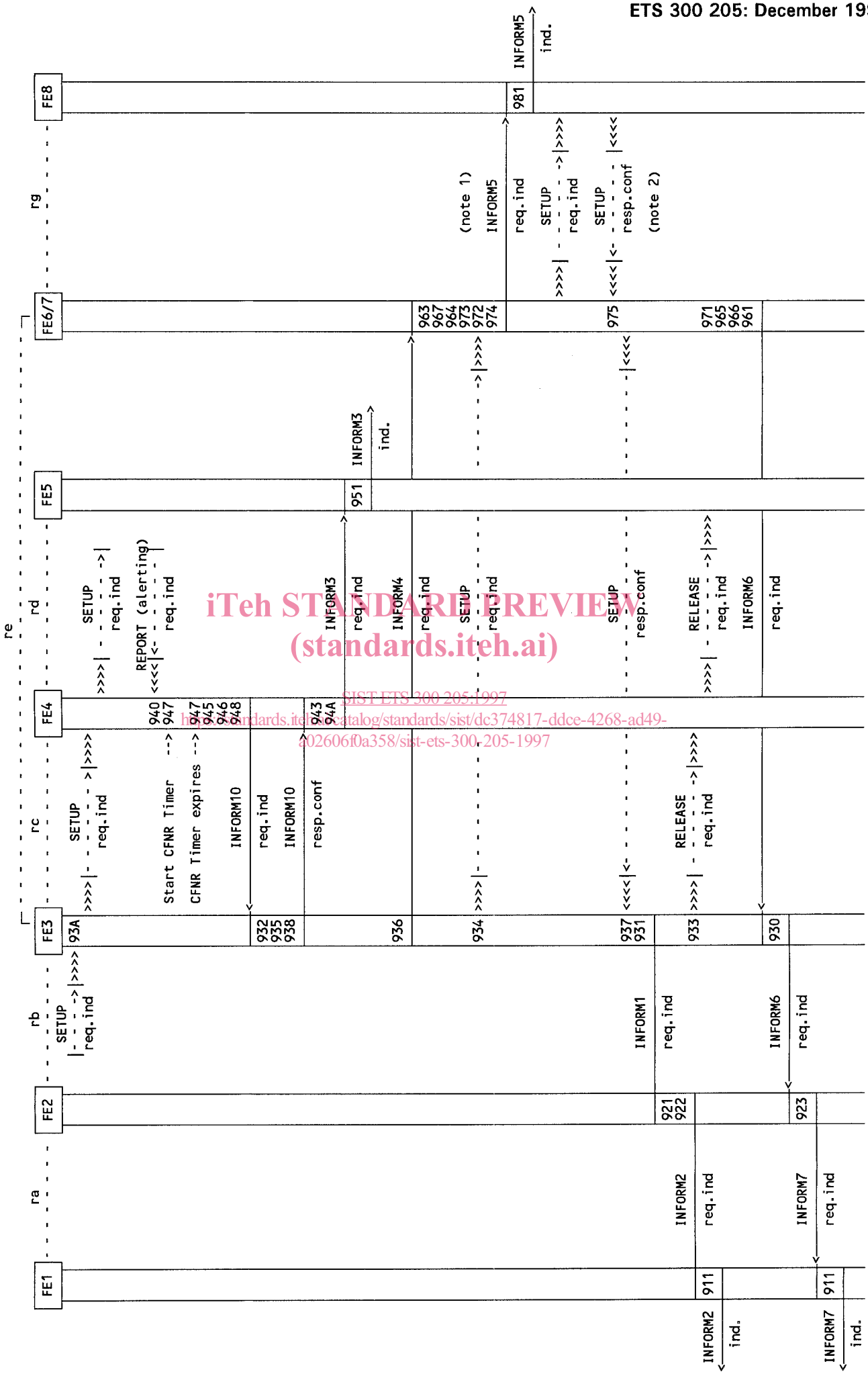

Figure 5: CFNR supplementary service, option A, late release, user C has automatic answering equipment

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