



INTERNATIONAL TELECOMMUNICATION UNION

CCITT

Q.83

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

**FUNCTIONS AND INFORMATION FLOWS
FOR SERVICES IN THE ISDN**

**STAGE 2 DESCRIPTION FOR CALL
COMPLETION SUPPLEMENTARY SERVICES
SECTION 1 – CALL WAITING (CW)
SECTION 4 – TERMINAL PORTABILITY**

**Modifications and addenda to:
Recommendation Q.83**



Geneva, 1991

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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Recommendation Q.83, §§ 1 and 4 was prepared by Study Group XI and was approved under the Resolution No. 2 procedure on the 10th of September 1991.

CCITT NOTE

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

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Recommendation Q.83**STAGE 2 DESCRIPTION FOR CALL COMPLETION
SUPPLEMENTARY SERVICES***(revised 1991)***1 Call waiting (CW)****1.1 Scope**

This Recommendation defines the stage 2 of the integrated services digital network (ISDN) as provided for the call waiting (CW) supplementary service. 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 Rec. I.130 [1]).

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

This Recommendation does not formally describe the relationship between this supplementary service and the basic call but, where possible, the 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 CW supplementary service permits a subscriber to be notified of an incoming call (as per basic call procedures) with an indication that no interface information channel is available. The user then has the choice of accepting, rejecting or ignoring the waiting call (as per basic call procedures).

The CW supplementary service is considered meaningful when applied to the telephony teleservice and the speech and 3.1 kHz audio bearer services. Furthermore, it may also be meaningful when applied to other services.

This Recommendation is applicable to the stage 3 Recommendations for the ISDN CW supplementary service. The term "stage 3" is also defined in Recommendation I.130 [1].

1.2 References

The 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 Rec. I.130 – *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*, 1988.
- [2] CCITT Rec. Q.65 – *Stage 2 of the method for the characterization of services supported by an ISDN*, 1988.
- [3] CCITT Rec. I.253.1 – *Call Waiting (CW) supplementary service*.
- [4] CCITT Rec. I.112 – *Vocabulary of terms for ISDNs*, 1988.

- [5] CCITT Rec. Q.83.2 – *Call Hold (CH) supplementary service*.
- [6] CCITT Rec. Q.71 – *ISDN 64 kbit/s circuit mode switched bearer services*, 1988.
- [7] CCITT Rec. I.210 – *Principles of telecommunications services supported by an ISDN and the means used to describe them*, 1988.

Editor's note – References [3] and [5] will become dated references to the next published versions of these Recommendations. The titles may need subsequent amendments.

1.3 Definitions

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

integrated services digital network (ISDN)

See definition 308 of § 2.3 of Recommendation I.112 [4].

service: telecommunications service

See definition 201 of § 2.2 of Recommendation I.112 [4].

supplementary service

See § 2.4 of Recommendation I.210 [7].

subscriber B

Subscriber B is the subscriber who is provided by the network with the CW supplementary service on a particular interface.

user B

User B is the one user who reacts to the call waiting at subscriber B.

user C

User C is the user who has originated a call to subscriber B which causes the CW supplementary service to be invoked.

user A

User A is a user who is engaged in a call with user B (this call can be in any state).

information channel control

A terminal that has information channel control, is active on a call, is alerting for an incoming call, has an outgoing call for which a channel has been selected, or has a call on hold with reservation.

1.4 Symbols and abbreviations

CC	Call control
CCA	Call control agent
CW	Call Waiting
FE	Functional entity
FEA	Functional entity action
ISDN	Integrated services digital network

LE Local exchange
 PNX Private network exchange
 SDL Specification and description language

1.5 Description

Not applicable.

1.6 Derivation of the functional model

1.6.1 Functional model description

The functional model for the CW supplementary service shall be as shown in Figure 1-1/Q.83.

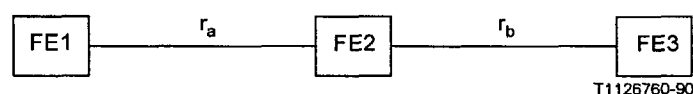


FIGURE 1-1/Q.83

Functional model

1.6.2 Description of the functional entities

The functional entities for the CW supplementary service above those of the basic call shall be as shown below:

FE1: waiting call notification receiver;
 FE2: waiting call control;
 FE3: waiting call agent.

1.6.3 Relationship with a basic service

The relationship of the functional model for the CW supplementary service with a basic call (from user C to user B) shall be as shown in Figure 1-2/Q.83.

Note – The basic call model is defined in § 2.1 of Recommendation Q.71 [6], with the exception that r_1 represents an outgoing call relationship from a CCA and r_3 represents an incoming call relationship to a CCA.

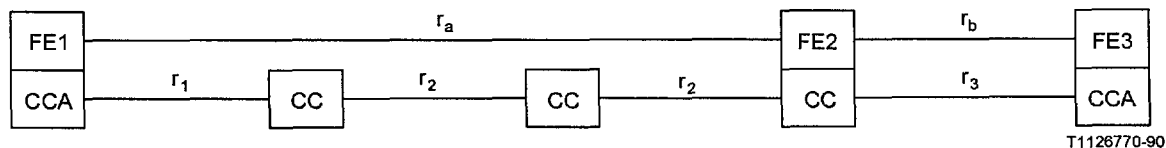


FIGURE 1-2/Q.83

Relationship of functional model with a basic call

1.7 Information flow

1.7.1 Information flow diagrams

Figures 1-3/Q.83 and 1-4/Q.83 show the information flows for a successful waiting call.

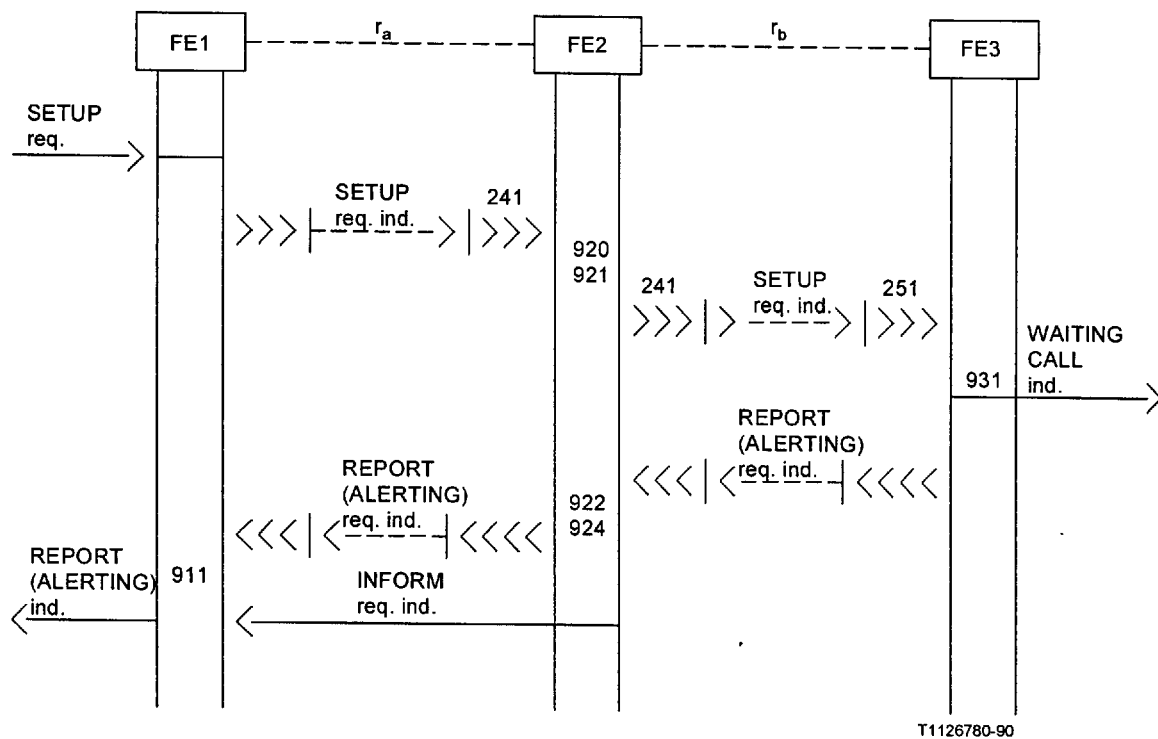
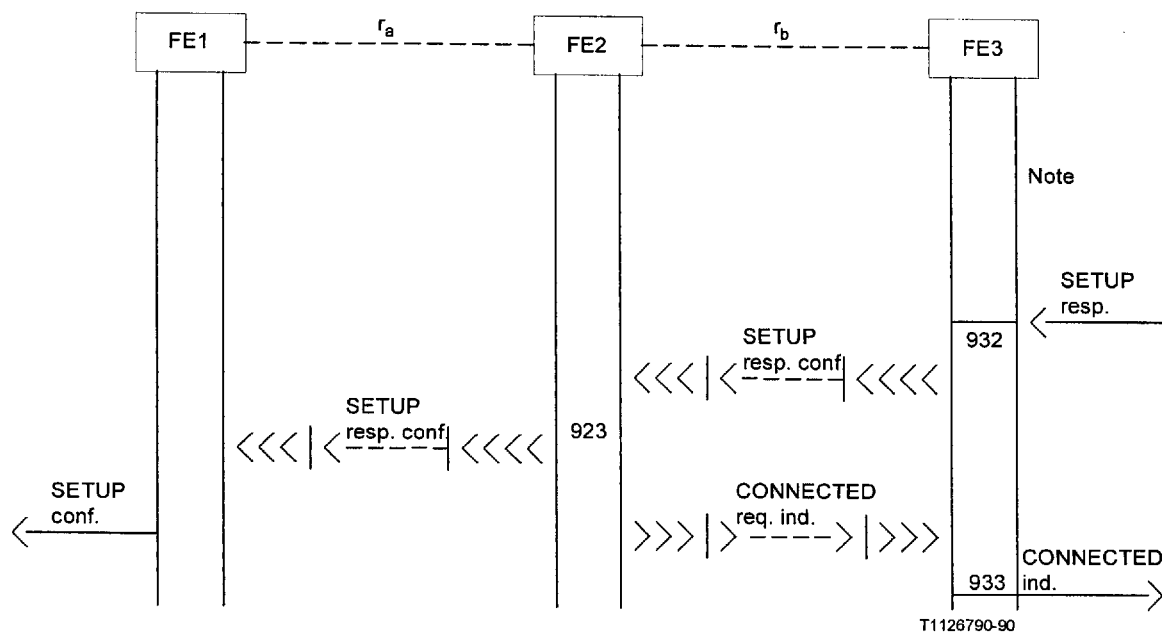


FIGURE 1-3/Q.83

Notification of waiting call



Note – Subscriber B may either clear the call A-B using the basic call clearing procedures as described in Recommendation Q.71 [6], or if the call hold supplementary service is subscribed, may hold the call A-B using the procedures specified in [5].

FIGURE 1-4/Q.83

Call waiting acceptance

1.7.2 Definition of individual information flows

1.7.2.1 Relationship r_a

1.7.2.1.1 Contents of *INFORM*

The contents of *INFORM* shall be as shown in Table 1-1/Q.83.

TABLE 1-1/Q.83
INFORM contents

Name	Req. ind.
Waiting call notification	Optional (Note)

Note – Mandatory if subscriber B subscribes to “calling user receives notification that his call is waiting”, otherwise not provided.

1.7.2.2 Relationship r_b

1.7.2.2.1 Contents of *SETUP*

The contents of *SETUP* shall be as basic call and additionally as shown in Table 1-2/Q.83.

TABLE 1-2/Q.83
SETUP contents

Name	Req. ind.
No information channel	Mandatory

1.7.2.2.2 Contents of *CONNECTED*

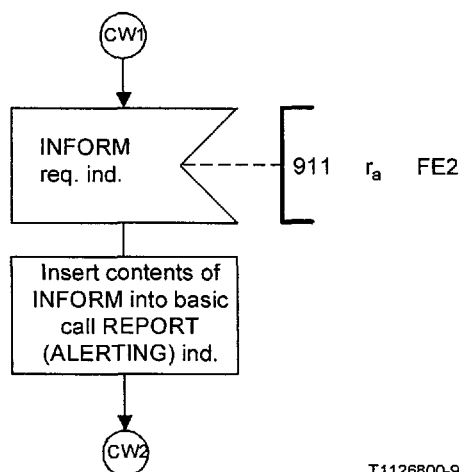
The contents of *CONNECTED* shall be as basic call and additionally as shown in Table 1-3/Q.83.

TABLE 1-3/Q.83

CONNECTED contents

Name	Req. ind.
Channel ID - channel number - exclusive; only the indicated channel is acceptable	Optional (Note)

Note – The channel identification is normally required. As a network option, the channel identification is not included if the user had responded with an exclusive channel identification. In this case, the terminal must connect to the last B-channel indicated to the network.

1.8 *SDL diagrams for functional entities*

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Note – CW1 and CW2 break the basic call transition during the CCA-state “I CALL SENT” after the receipt of REPORT req. ind. and prior to the output REPORT ind.; see Figure 2-8 (sheet 2 of 11) of Recommendation Q.71 [6].

FIGURE 1-5/Q.83

CW – FE1

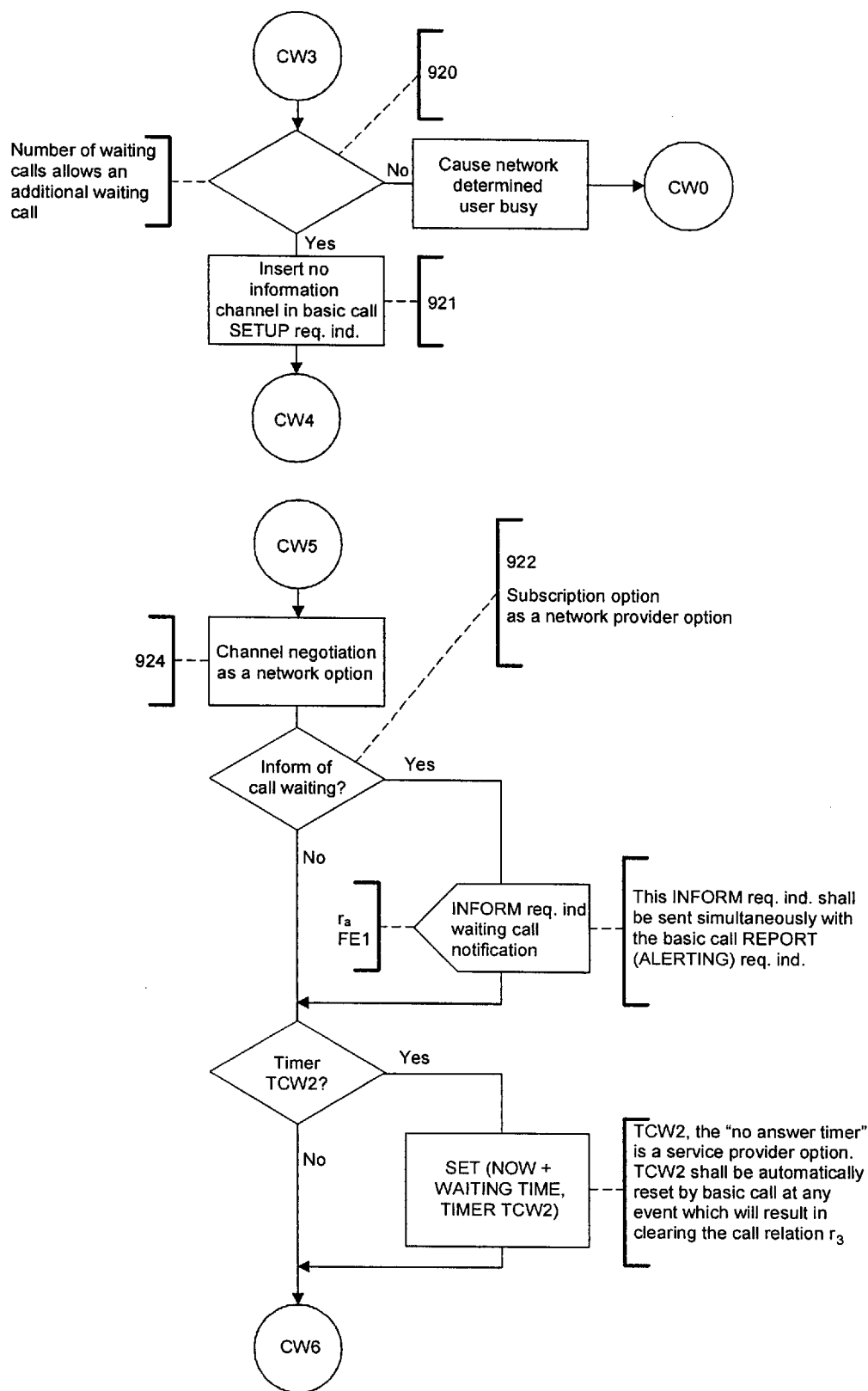


FIGURE 1-6/Q.83 (sheet 1 of 3)

CW - FE2