INTERNATIONAL TELECOMMUNICATION UNION

CCITT

Q.733

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

SPECIFICATIONS OF SIGNALLING SYSTEM No. 7

STAGE 3 DESCRIPTION FOR CALL COMPLETION SUPPLEMENTARY SERVICES USING No. 7 SIGNALLING SYSTEM

SECTION 1 – CALL WAITING (CW)

Recommendation Q.733

Geneva, 1992

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.

The Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation Q.733, § 1 was prepared by Study Group XI and was approved under the Resolution No. 2 procedure on the 4th of February 1992.

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.733

STAGE 3 DESCRIPTION FOR CALL COMPLETION SUPPLEMENTARY SERVICES USING SIGNALLING SYSTEM No. 7

1 Call Waiting (CW)

1.1 *Definition*

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).

1.2 *Description*

1.2.1 *General description*

The ISDN Call Waiting supplementary service allows to notify a subscriber of an incoming call.

1.2.2 *Specific terminology*

Throughout the stage 3 description of Call Waiting, the following terminology will be used:

Subscriber B: this is the subscriber who is provided by the network with the Call Waiting supplementary service on a particular interface.

User A: this represents a user who is engaged in a call with the user B.

User B: this is the user who reacts to the call waiting at B.

User C: this is the user who has originated a call to B which causes the call waiting supplementary service to be invoked.

1.2.3 *Qualification on the applicability to telecommunication services*

Same as § 1.2.3 of Recommendation I.253

1.2.4 *State definitions*

No specific state definitions are required.

1.3 *Operational requirements*

1.3.1 *Provision and withdrawal*

The CW supplementary service shall either be provided on a subscription basis or, as a network provider option, be generally available to all users without subscription. Withdrawal shall be at the request of the subscriber or for administrative reasons.

As a network provider option, CW can be offered at the destination exchange with the following subscription option:

the destination exchange sends a notification to the calling user that his call is waiting.

1.3.2 *Requirements on the originating network side*

Not applicable.

1.3.3 *Requirements in the network*

No specific requirements are needed in the network.

1.3.4 *Requirements on the terminating network side*

Not applicable.

1.4 *Coding requirements*

The following notification description is used:

– call is a waiting call.

The Generic Notification Indicator parameter field shall be coded as shown in Table 1-1/Q.733:

TABLE 1-1/Q.733

Generic Notification Indicator parameter field

Bits	
7 6 5 4 3 2 1	Description
1 1 0 0 0 0 0	Call is a Waiting Call

The Generic Notification Indicator parameter is accompanied by the parameter Compatibility Information parameter. The procedures for the compatibility are defined in Recommendation Q.764.

1.5 *Signalling requirements*

1.5.1 *Activation/deactivation/registration*

Not applicable.

1.5.2 *Invocation and operation*

1.5.2.1 *Actions at the originating local exchange*

1.5.2.1.1 *Normal operation*

If the call waiting indication is contained in the Notification Indicator parameter field of the address complete message or call progress message, the calling user C is informed that his call is waiting.

1.5.2.1.2 *Exceptional procedures*

No exceptional procedures are required.

1.5.2.2 *Actions at the transit exchange*

1.5.2.2.1 *Normal operation*

A transit exchange shall transfer the notification indication transparently to the succeeding exchange.

1.5.2.2.2 *Exceptional procedures*

No exceptional procedures are required.

1.5.2.3 *Actions at the outgoing international gateway exchange*

1.5.2.3.1 *Normal operation*

An outgoing international gateway exchange shall transfer the notification indication transparently to the succeeding exchange.

1.5.2.3.2 *Exceptional procedures*

No exceptional procedures are required.

1.5.2.4 *Actions at the incoming international gateway exchange*

1.5.2.4.1 *Normal operation*

An incoming international gateway exchange shall transfer the notification indication transparently to the succeeding exchange.

1.5.2.4.2 *Exceptional procedures*

In the case of interworking with networks not supporting the CW supplementary service, the incoming international gateway exchange shall discard the notification indication and the call will be completed according to the basic call procedure as described in Recommendation Q.764.

1.5.2.5 *Actions at the destination local exchange*

1.5.2.5.1 *Normal operation*

As a subscription option the destination exchange shall include the call waiting indication in the Notification Indicator parameter field and send it within the address complete message or call progress message to the originating exchange as the result of the receipt of an alerting message at the user-network interface.

Note – See Figures 1-1/Q.733 and 1-2/Q.733 of § 1.8.

1.5.2.5.2 *Exceptional procedures*

After the alerting message has been sent by subscriber B to the network (user alerted), this incoming call can be rejected by the user. A release message is sent to user C with cause #21 (call rejected).

Note – See Figure 1-3/Q.733 of § 1.8.

After expiry of the call waiting supervision timer at the user-network interface (see Recommendation Q.931, § 9) the network initiates clearing procedures. A release message is sent to user C with cause #19 (no answer from user, user alerted).

Note – See Figure 1-4/Q.733 of § 1.8.

1.6 *Interactions with other supplementary services*

Note 4 – When "no impact" stands alone, please read: i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.1 *Call Waiting (CW)*

Not applicable.

1.6.2 *Call Transfer (CT)*

No applicable interaction at this time.

1.6.3 *Calling Line Identification Presentation (CLIP)*

No impact on ISUP.

1.6.4 *Calling Line Identification Restriction (CLIR)*

No impact on ISUP.

1.6.5 *Connected Line Identification Presentation (COLP)*

No impact on ISUP.

1.6.6 *Connected Line Identification Restriction (COLR)*

No impact on ISUP.

1.6.7 *Closed User Group (CUG)*

No impact on ISUP.

1.6.8 *Conference Calling (CONF)*

No impact on ISUP.

1.6.9 *Direct-Dialling-In (DDI)*

No impact on ISUP.

1.6.10 *Call Diversion services (CDIV)*

1.6.10.1 *Call Forwarding Busy (CFB)*

No impact on ISUP.

1.6.10.2 *Call Forwarding No Reply (CFNR)*

No impact on ISUP.

1.6.10.3 *Call Forwarding Unconditional (CFU)*

No impact on ISUP.

1.6.10.4 *Call Deflection (CD)*

No impact on ISUP.

1.6.11 *Line Hunting (LH)*

The Call Waiting supplementary service should not be provided to a line in a hunt group.

1.6.12 *Three-Party Service (3PTY)*

No impact on ISUP.

1.6.13 *User-to-User Signalling (UUS)*

No impact on ISUP.

1.6.14 *Multiple Subscriber Number (MSN)*

No impact on ISUP.

1.6.15 *Call Hold (CH)*

No impact on ISUP.

1.6.16 *Advice of Charge (AOC)*

No applicable interaction at this time.

1.6.17 *Sub-addressing (SUB)*

No impact on ISUP.

1.6.18 *Terminal Portability (TP)*

No impact on ISUP.

1.6.19 *Completion of Calls to Busy Subscriber (CCBS)*

No applicable interaction at this time.

1.6.20 *Malicious Call Identification (MCID)*

No impact.

1.6.21 *Reverse Charging (REV)*

No applicable interaction at this time.

1.6.22 *Multi-Level Precedence and Pre-emption (MLPP)*

No impact on ISUP.

1.6.23 *Private Numbering Plan (PNP)*

No applicable interaction at this time.

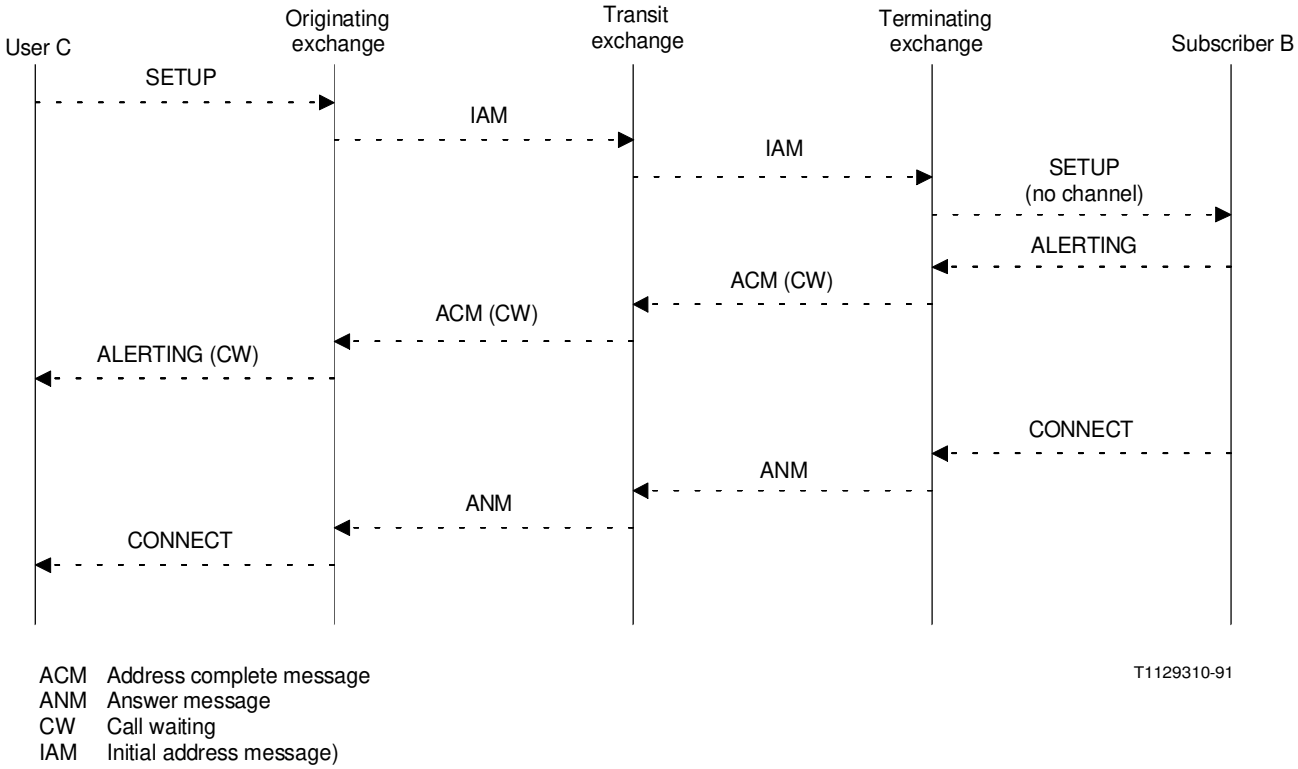
1.6.24 *Charge Card*

No applicable interaction at this time.

1.7 *Interactions with other networks*

In the case of interworking with networks which do not provide the Call Waiting supplementary service, the interworking exchange will discard the notification indication. The call will then be completed according to the basic call procedure as described in Recommendation Q.764.

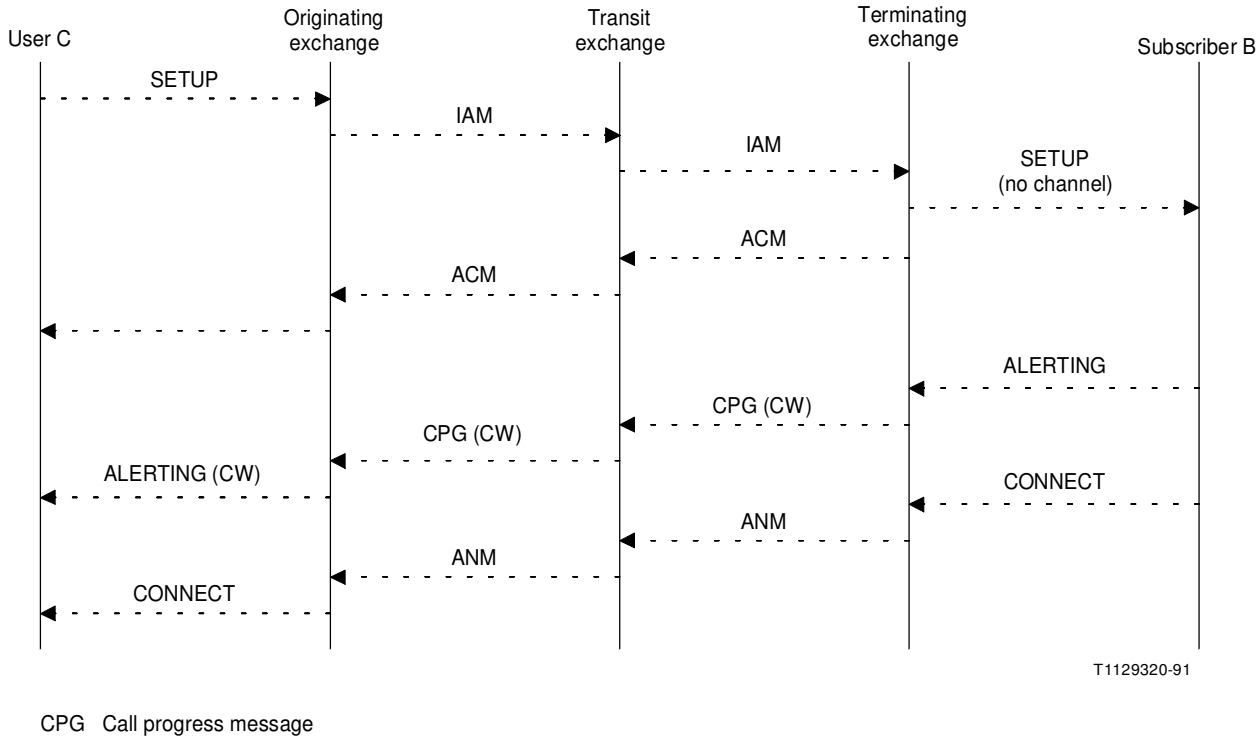
1.8 *Signalling flows*



ACM Address complete message
ANM Answer message
CW Call waiting
IAM Initial address message)

FIGURE 1-1/Q.733

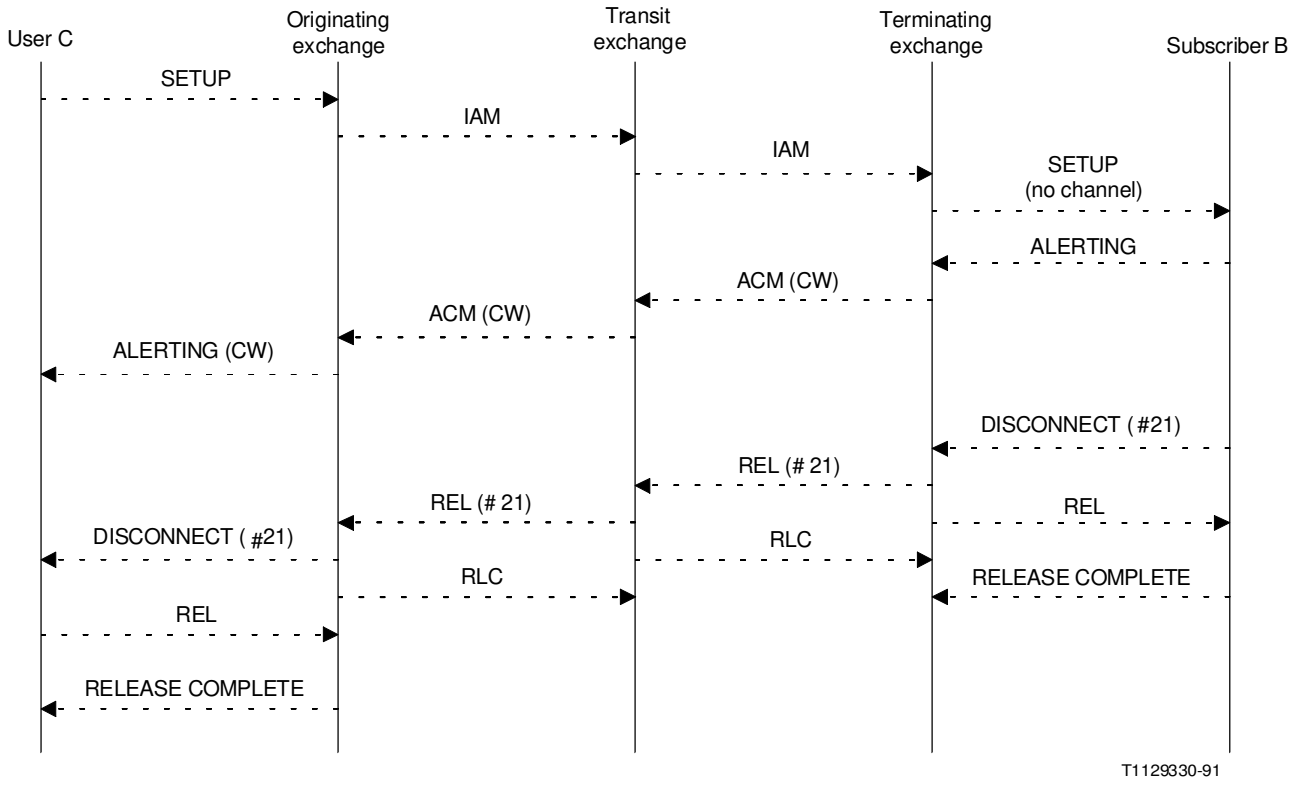
Call Waiting successful
Call Waiting indication in address complete message (ACM)



CPG Call progress message

FIGURE 1-2/Q.733

Call Waiting successful
Call Waiting indication in call progress message (CPG)



REL Release message
RLC Release complete message

FIGURE 1-3/Q.733

Call Waiting rejection

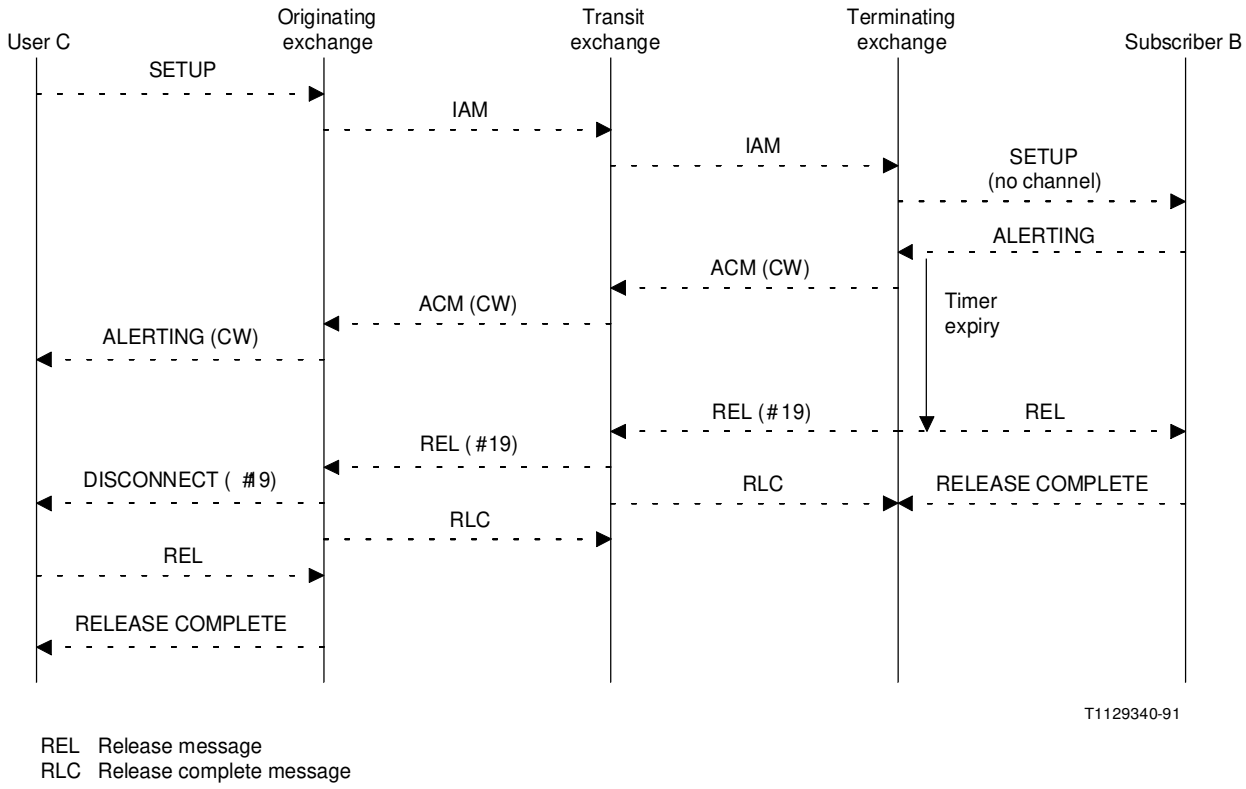


FIGURE 1-4/Q.733

Call Waiting ignored

1.9 *Parameter values (timers)*

No specific timers are required.

1.10 *Dynamic description*

As a first step, the basic call control SDLs (specification and description languages) of the ISDN User Part (ISUP) (see Recommendation Q.764) apply for the Call Waiting supplementary service, because there is no change in the message sequence.