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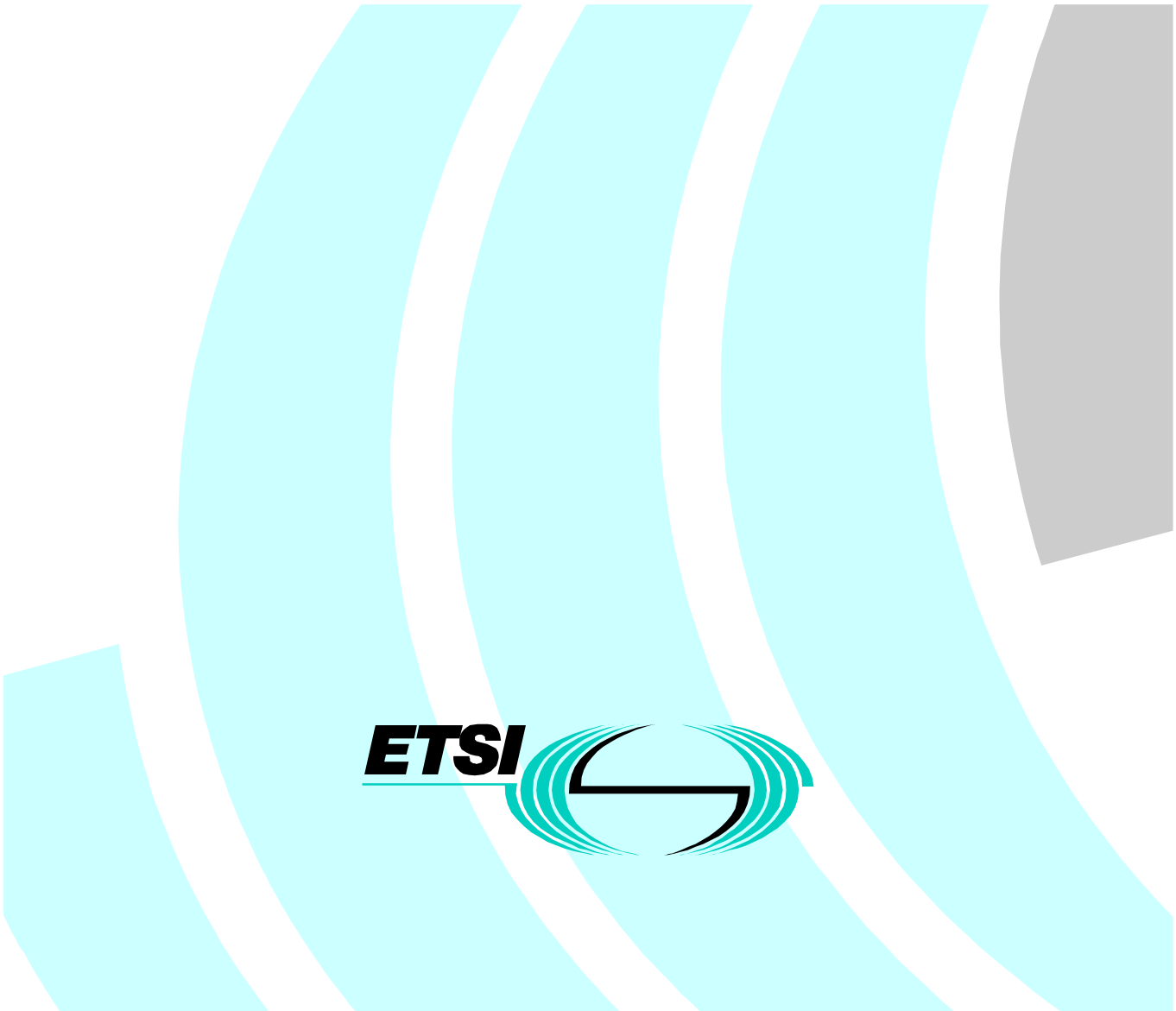
European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 20: Completion of Calls on No Reply (CCNR) supplementary service

[ITU-T Recommendation Q.733, clause 5 (1999) modified]



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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document is part 20 of a multi-part deliverable covering the ISDN User Part (ISUP) version 4 for the international interface, as identified below:

Part 1: "Basic services [ITU-T Recommendations Q.761 to Q.764 (1999) modified]";

Part 2: "ISDN supplementary service [ITU-T Recommendation Q.730 (1999) modified]";

Part 3: "Calling Line Identification Presentation (CLIP) supplementary service [ITU-T Recommendation Q.731, clause 3 (1993) modified]";

Part 4: "Calling Line Identification Restriction (CLIR) supplementary service [ITU-T Recommendation Q.731, clause 4 (1993) modified]";

Part 5: "Connected Line Identification Presentation (COLP) supplementary service [ITU-T Recommendation Q.731, clause 5 (1993) modified]";

Part 6: "Connected Line Identification Restriction (COLR) supplementary service [ITU-T Recommendation Q.731, clause 6 (1993) modified]";

Part 7: "Terminal Portability (TP) supplementary service [ITU-T Recommendation Q.733, clause 4 (1993) modified]";

Part 8: "User-to-User Signalling (UUS) supplementary service [ITU-T Recommendation Q.737, clause 1 (1997) modified]";

Part 9: "Closed User Group (CUG) supplementary service [ITU-T Recommendation Q.735, clause 1 (1993) modified]";

Part 10: "Subaddressing (SUB) supplementary service [ITU-T Recommendation Q.731, clause 8 (1992) modified]";

Part 11: "Malicious Call Identification (MCID) supplementary service [ITU-T Recommendation Q.731, clause 7 (1997) modified]";

Part 12: "Conference Call, add-on (CONF) supplementary service [ITU-T Recommendation Q.734, clause 1 (1993) and implementors guide (1998) modified]";

Part 14: "Explicit Call Transfer (ECT) supplementary service [ITU-T Recommendation Q.732, clause 7 (1996) and implementors guide (1998) modified]";

Part 15: "Diversion supplementary service [ITU-T Recommendation Q.732, clauses 2 to 5 (1999) modified]";

Part 16: "Call Hold (HOLD) supplementary service [ITU-T Recommendation Q.733, clause 2 (1993) modified]";

Part 17: "Call Waiting (CW) supplementary service [ITU-T Recommendation Q.733, clause 1 (1992) modified]";

Part 18: "Completion of Calls to Busy Subscriber (CCBS) supplementary service [ITU-T Recommendation Q.733, clause 3 (1997) modified]";

Part 19: "Three-Party (3PTY) supplementary service [ITU-T Recommendation Q.734, clause 2 (1996) and implementors guide (1998) modified]";

Part 20: "Completion of Calls on No Reply (CCNR) supplementary service [ITU-T Recommendation Q.733, clause 5 (1999) modified]";

Part 21: "Anonymous Call Rejection (ACR) supplementary service [ITU-T Recommendation Q.731, clause 4 (1993)]";

Part 31: "Protocol Implementation Conformance Statement (PICS) proforma specification for basic services";

Part 32: "Test Suite Structure and Test Purposes (TSS&TP) specification for basic services";

Part 33: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for basic services";

Part 34: "Protocol Implementation Conformance Statement (PICS) proforma specification for supplementary services";

Part 35: "Test Suite Structure and Test Purposes (TSS&TP) specification for supplementary services";

Part 36: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for supplementary services".

In accordance with ITU-T Recommendation I.130 [1], the following three level structure is used to describe 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 stand-point;
- 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.

The present document details the stage 3 aspects (signalling system protocols and switching functions) needed to support the CCNR supplementary service. The stage 1 aspects are detailed in EN 301 134 [4].

NOTE: Currently no stage 2 document exists.

National transposition dates	
Date of adoption of this EN:	13 July 2001
Date of latest announcement of this EN (doa):	31 October 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2002
Date of withdrawal of any conflicting National Standard (dow):	30 April 2002

Endorsement notice

The elements of ITU-T Recommendation Q.733, clause 5 (1999) apply, with the following modifications.

NOTE: New or modified text is indicated using sidebars. In addition, underlining and/or strike-out are used to highlight detailed modifications where necessary.

Global modifications to ITU-T Recommendation Q.733, clause 5

Insert the following two clauses (Scope and References) at the start of clause 2.

Scope

The present document specifies the stage three of the Completion of Calls on No Reply (CCNR) supplementary service for the ISDN as provided by the European public telecommunications operators by means of the Signalling System No.7 protocol. Stage three identifies the protocol procedures and switching functions needed to support a telecommunication service (see ITU-T Recommendation I.130 [1]).

The present document specifies the additional requirements where the service is provided to the user via an intermediate ISDN.

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

Although the present document applies only to the international interconnection, the specification of functions, formats and codes of messages and signals, and actions performed at originating and destination local exchanges are retained. Formats, codes and procedures marked for national use are included for informative purposes for the international interface specification. If these items so marked are supported within a national network and operator's network, then it is proposed that they shall be supported in this manner.

NOTE: In the case where a national signalling system behaves differently, the international gateway exchange is to support both the national network concerned and the international network.

Charging aspects are outside the scope of the present document.

References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

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

[2] ETSI ETS 300 121 (1992): "Integrated Services Digital Network (ISDN); Application of the ISDN User Part (ISUP) of CCITT Signalling System No.7 for international ISDN interconnections (ISUP version 1)".

[3] ETSI EN 300 356-1: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1999) modified]".

[4] ETSI EN 301 134 (V1.1.1): "Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service; Service description".

[5] ETSI ETS 300 186 (1993): "Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Service description".

[6] ETSI ETS 300 187/C1 (1994): "Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Functional capabilities and information flows".

[7] ETSI EN 300 356-2: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 2: ISDN supplementary service [ITU-T Recommendation Q.730 (1999) modified]".

[8] ETSI EN 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

[9] ETSI ETS 300 188-1 (1993): "Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

Throughout the text of ITU-T Recommendation Q.733, clause 5

Replace references as shown in table 1.

Table 1

Reference in ITU-T Recommendation Q.733, clause 5	Modified reference
ITU-T Recommendation I.254.2	ETS 300 186 [5]
ITU-T Recommendation Q.84, clause 2	ETS 300 187 [6]
ITU-T Recommendation Q.730	ITU-T Recommendation Q.730 as modified by EN 300 356-2 [7]
ITU-T Recommendation Q.761	ITU-T Recommendation Q.761 as modified by EN 300 356-1 [3]
ITU-T Recommendation Q.762	ITU-T Recommendation Q.762 as modified by EN 300 356-1 [3]
ITU-T Recommendation Q.763	ITU-T Recommendation Q.763 as modified by EN 300 356-1 [3]
ITU-T Recommendation Q.764	ITU-T Recommendation Q.764 as modified by EN 300 356-1 [3]
ITU-T Recommendation Q.767	ETS 300 121 [2]
ITU-T Recommendation Q.931	ITU-T Recommendation Q.931 as modified by EN 300 403-1 [8]
ITU-T Recommendation Q.954, clause 2	ETS 300 188-1 [9]

Clause 3

Modify the definition of "Retain option" as follows:

Retain option: The retain option, if supported in both the originating and destination network, will maintain the CCNR request in the destination B queue, if a CCNR call has failed due to destination busy condition. ~~or because the destination B does not answer the CCNR call.~~

Delete the definition of "Destination B does not answer the CCNR call" (it is not applicable).

Subclause 9.3.1.2 d)

Replace the entire subclause 9.3.1.2.d) as follows:

d) The CCNR call is successfully offered to destination B

If the originating local exchange has sent an Initial Address message including the CCSS parameter and receives an ACM (subscriber free) or CPG (alerting) or Connect message, then

- the originating local exchange shall release the transaction resources. The CCNR request shall be deactivated and user A shall be informed accordingly. If user A attempts to activate CCNR again, one of the following procedures shall apply:

  - if the received ACM/CPG contained a CCNR Possible indicator the procedures of subclause 9.1.1.1 shall be followed;

  - if the received ACM/CPG did not contain a CCNR Possible indicator, interworking is applied and the procedures of subclause 11.1 shall be followed.

NOTE 2: Some networks may take action to reduce the probability of network congestion on the CCNR call.

Subclause 9.3.5.1

Replace text (second paragraph after "iii)") as follows:

When the destination local exchange has sent an Address Complete message (with subscriber free), a CPG (alerting) message or a Connect message, the destination local exchange shall:

Subclause 9.3.5.2 d)

Replace the entire subclause 9.3.5.2 d) as follows:

d) The CCNR call is successfully offered to destination B.

- If the destination local exchange sends an ACM(subscriber free) or CPG(alerting) or Connect message, then the corresponding CCNR request shall be cancelled. The destination local exchange shall release its resources.

- If user A activates CCNR again, this activation shall be considered as a new CCNR request, which will be put at the end of the destination B queue upon receipt of a new CcnrRequest invoke component from the originating local exchange. In this case the CCNR duration timers CCNR-T3 and CCNR-T7 shall be restarted and user A shall receive a confirmation.

Subclause 9.5.4.1 a)

Delete the very last hyphenated item (it is not applicable):

~~- CFNR, if the retain option is not supported, see 10.10.2.2 c).~~

Subclause 9.5.4.1 b)

Replace the two hyphenated items as follows:

Upon sending of the Address Complete message (with subscriber free), Call Progress message (with alerting) or Connect message from the destination local exchange.

Subclause 10.2.2

Delete the entire subclause 10.2.2 (it is not applicable).

Subclause 10.10.2.2 c)

Replace the two hyphenated items as follows:

- either the CCNR call is treated as "the CCNR call is successfully offered to destination B" (see subclause 9.3.5.2 d);

- or the TC-dialogue is terminated by destination B according to subclause 9.5.4.1.b). After expiry of the No Reply timer, the call is forwarded as a normal call. The CCSS parameter in the forwarded Initial Address message is deleted.

Subclause 10.21

Delete the entire subclause (it is not applicable).

Subclause 10.22

Delete the entire subclause (it is not applicable).

Subclause 10.23

Delete the entire subclause (it is not applicable).

Subclause 10.24

Delete the entire subclause (it is not applicable).

Subclause 10.25

Delete the entire subclause (it is not applicable).

Add the following subclauses 10.27, 10.28, 10.29:

10.27 Message Waiting Indication (MWI)

No impact on either ISUP or CCNR ASE.

10.28 Outgoing Call Barring (OCB)

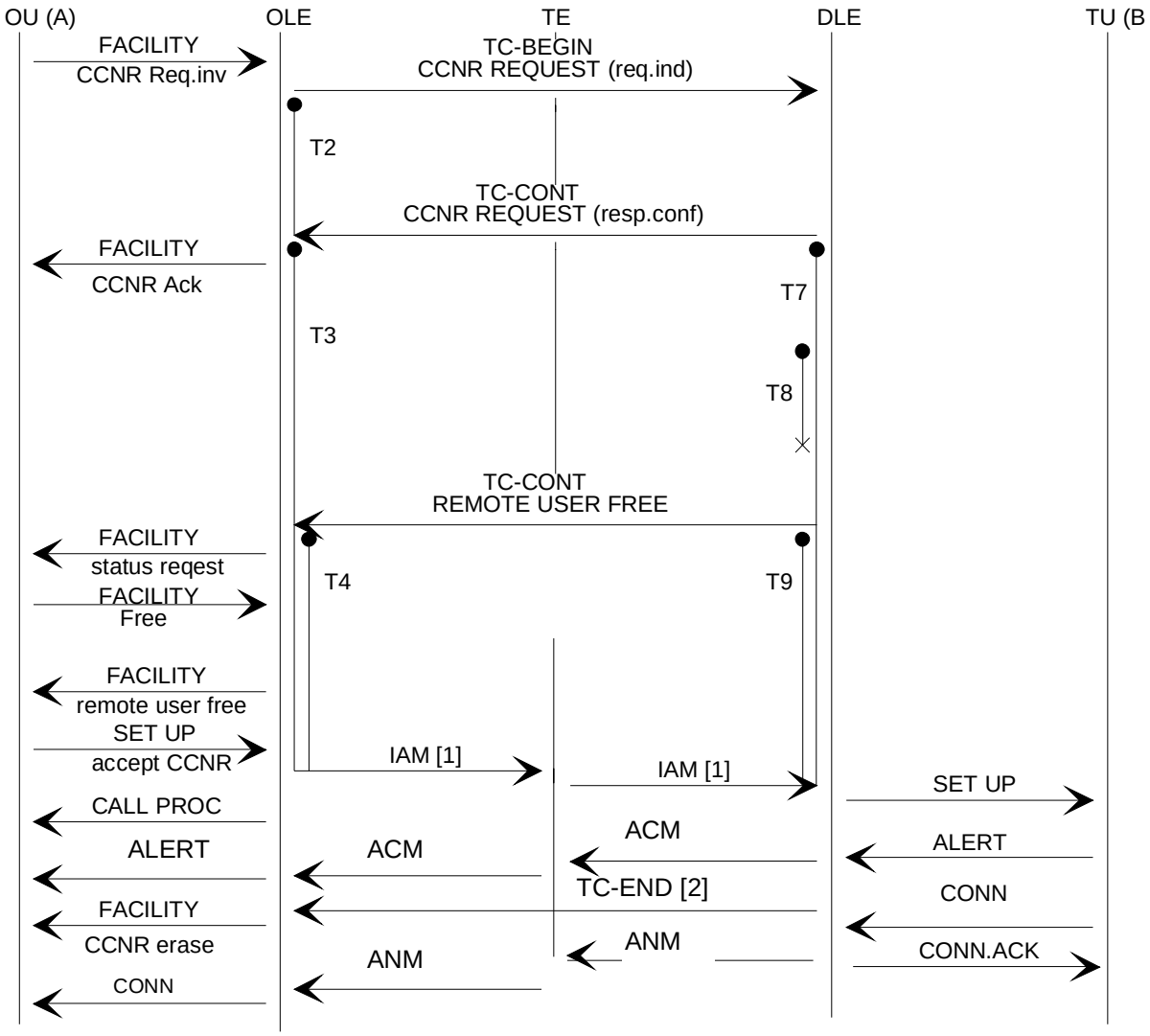
When the CCNR call is barred, the corresponding CCNR request shall be deactivated.

10.29 Selective Call Forwarding (SCF)

No impact on either ISUP or CCNR ASE.

Subclause 12.2

Replace the figure and the notes by the following:



1) IAM with:
   - ISUP required;
   - CCSS parameter.
2) The case where the destination local exchange sends TC-END is shown.

Annex ZA (informative): Coding of the compatibility information

ZA.1 CCNR Possible Indicator parameter

It is proposed that the parameter compatibility information for the CCNR Possible Indicator parameter should be coded as follows:

a) N^{th} upgraded parameter:

0111 1010 CCNR Possible Indicator parameter.

b) Instruction indicators:

bit A: Transit at intermediate exchange indicator;

0 transit interpretation;

bit B: Release call indicator;

0 do not release call;

bit C: Send notification indicator;

0 do not send notification;

bit D: Discard message indicator;

0 do not discard message (pass on);

bit E: Discard parameter indicator;

0 do not discard parameter (pass on);

bits GF: Pass on not possible indicator;

10 discard parameter;

bits JI: Broadband/Narrowband interworking indicator;

00 pass on.

ZA.2 CCSS Parameter

It is proposed that the parameter compatibility information for the CCSS parameter should be coded as follows:

a) N^{th} upgraded parameter:

0100 1011 CCSS parameter.

b) Instruction indicators

bit A: Transit at intermediate exchange indicator;

0 transit interpretation;

bit B: Release call indicator;

0 do not release call;

bit C: Send notification indicator;

0 do not send notification;

bit D: Discard message indicator;

0 do not discard message (pass on);

bit E: Discard parameter indicator;

0 do not discard parameter (pass on);

bits GF: Pass on not possible indicator;

10 discard parameter;

bits JI: Broadband/Narrowband interworking indicator;

00 pass on.

Annex ZB (informative): Signalling Interworking

ZB.1 Interworking at the Originating Local Exchange

ZB.1.1 CCNR call set-up

Table ZB.1

SETUP →	**IAM →**
Facility information element: CCBSCall invoke component or CCBS-T-Call invoke component	 CCSS parameter: CCSS call

ZB.1.2 CCNR available indication

a) Coincident S and T reference point

Table ZB.2

← ALERTING	**← ACM (subscriber free), ← CPG (alerting)**
Facility information element: CallInfoRetain invoke component	CCNR Possible Indicator parameter: CCNR possible

b) T reference point

Table ZB.3

← ALERTING	**← ACM (subscriber free), ← CPG (alerting)**
Facility information element: CCBS-T-Available invoke component	CCNR Possible Indicator parameter: CCNR possible

ZB.1.3 CCNR request

a) Coincident S and T reference point

Table ZB.4

FACILITY →	TC-BEGIN →
Facility information element: CCNRRequest invoke component	 CcnrRequest invoke

Table ZB.5

← FACILITY	← TC-CONTINUE
Facility information element: CCNRRequest return result	CcnrRequest return result

b) T reference point

Table ZB.6

REGISTER →	TC-BEGIN→
Facility information element: CCNR-T-Request invoke component: destinationAddress retentionSupported q931InfoElement presentationAllowedIndicator originatingAddress	 CcnrRequest invoke: calledPartyNumber retainSupported userServiceInf (BC or BC 1) userServiceInfPrime (BC 2) accessTransportParameter callingPartyNumber

Table ZB.7

← FACILITY	← TC-CONTINUE
Facility information element: CCNR-T-Request return result	CcnrRequest return result

ZB.1.4 Remote user free

a) Coincident S and T reference point

Table ZB.8

← FACILITY	← TC-CONTINUE
Note: First, user A monitoring procedure takes place. Facility information element: CCBSRemoteUserFree invoke component	RemoteUserFree

b) T reference point

Table ZB.9

← FACILITY	← TC-CONTINUE
Facility information element: CCBS-T-RemoteUserFree invoke component	RemoteUserFree

ZB.1.5 Suspend/Resume request

a) Coincident S and T reference point

At the coincident S and T reference point, there are no specific signalling interworking aspects for CCNR.

b) T reference point

Table ZB.10

FACILITY →	TC-CONTINUE →
Facility information element: CCBS-T-Suspend invoke component or CCBS-T-Resume invoke component	 CcbsSuspend invoke component or CcbsResume invoke component

ZB.1.6 Deactivation request

a) Coincident S and T reference point

Table ZB.11

FACILITY →	TC-END →
Facility information element: CCBSDeactivate invoke component	 CcbsCancel invoke component

b) T reference point

At the T reference point, there are no specific signalling interworking aspects for CCNR.

ZB.2 Interworking at the Destination Local Exchange

ZB.2.1 CCNR call set-up

a) Coincident S and T reference point

At the coincident S and T reference point, there are no specific signalling interworking aspects for CCNR.

b) T reference point

Table ZB.12

IAM →	SETUP →
CCSS parameter: CCSS call	Facility information element: CCBS-T-Call invoke component

ZB.2.2 CCNR request

a) Coincident S and T reference point

The receipt of TC-BEGIN with the CcnrRequest invoke component triggers the activation procedures at the destination local exchange.

b) T reference point

Table ZB.13

TC-BEGIN →	REGISTER →
CcnrRequest invoke: CalledPartyNumber retainSupported userServiceInf (BC or BC1) userServiceInfPrime (BC 2) accessTransportParameter callingPartyNumber	Facility information element: CCNR-T-Request invoke component: destinationAddress retentionSupported q931InfoElement presentationAllowedIndicator originatingAddress

Table ZB.14

← TC-CONTINUE	← FACILITY
CcnrRequest return result	CCNR-T-Request return result

ZB.2.3 Remote user free

a) Coincident S and T reference point

The sending of TC-CONTINUE with RemoteUserFree invoke component is part of the CCNR recall procedure at the destination local exchange.

b) T reference point

Table ZB.15

← TC-CONTINUE	← FACILITY
RemoteUserFree	Facility information element: CCBS-T-RemoteUserFree invoke component

ZB.2.4 CCNR available indication

a) Coincident S and T reference point

At the coincident S and T reference point, there are no specific signalling interworking aspects for CCNR.

b) T reference point

Table ZB.16

← ACM (subscriber free), ← CPG (alerting)	← ALERTING
CCNR Possible Indicator parameter: CCNR possible	Facility information element: CCBS-T-Available invoke component

ZB.2.5 Suspend/Resume request

a) Coincident S and T reference point

At the coincident S and T reference point, there are no specific signalling interworking aspects for CCNR.

b) T reference point

Table ZB.17

TC-CONTINUE →	FACILITY →
CcbsSuspend invoke component or CcbsResume invoke component	Facility information element: CCBS-T-Suspend invoke component or CCBS-T-Resume invoke component

Annex ZC (informative): Bibliography

ITU-T Recommendations X.680 - X.683 (1994): "Information technology - Abstract Syntax Notation One (ASN.1)".

ETSI ETS 300 009-1 (1996): "Integrated Services Digital Network (ISDN); Signalling System No.7; Signalling Connection Control Part (SCCP) (connectionless and connection-oriented class 2) to support international interconnection; Part 1: Protocol specification [ITU-T Recommendations Q.711 to Q.714 and Q.716 (1993), modified]".

ETSI ETS 300 287-1 (1996): "Integrated Services Digital Network (ISDN); Signalling System No.7; Transaction Capabilities (TC) version 2; Part 1: Protocol specification [ITU-T Recommendations Q.771 to Q.775 (1993), modified]".

ETSI EN 300 356-18: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 18: Completion of Calls to Busy Subscriber (CCBS) supplementary service [ITU-T Recommendation Q.733, clause 3 (1997) modified]".

ETSI EN 301 065-1 (V1.2.2): "Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

ITU-T Recommendation Q.715 (1996): "Signalling connection control part user guide".

ETSI ETS 300 264 (1994): "Integrated Services Digital Network (ISDN); Videotelephony teleservice; Service description".

History

Document history				
V3.2.8	September 1998	Publication		
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