EUROPEAN TELECOMMUNICATION STANDARD

ETS 300 392-10-23

April 1996

Source: ETSI TC-RES

Reference: DE/RES-06001-10-23

ICS: 33.020, 33.060.50

Key words: TETRA, V+D

Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Part 10-23: Call completion on no reply

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS is a multi-part standard and will consist of the following parts:

Part 1: "General network design".

Part 2: "Air Interface (AI)".

Part 3: "Inter-working", (DE/RES-06001-3).

Part 4: "Gateways", (DE/RES-06001-4).

Part 5: "Terminal equipment interface", (DE/RES-06001-5).

Part 6: "Line connected stations", (DE/RES-06001-6).

Part 7: "Security".

Part 8: "Management services", (DE/RES-06001-8).

Part 9: "Performance objectives", (DE/RES-06001-9).

Part 10: "Supplementary services stage 1", (DE/RES-06001-10).

Part 11: "Supplementary services stage 2", (DE/RES-06001-11).

Part 12: "Supplementary services stage 3", (DE/RES-06001-12).

Part 13: "SDL Model of the Air Interface", (DE/RES-06001-13).

Part 14: "PICS Proforma", (DE/RES-06001-14).

Part 15: "Inter-working - Extended Operations", (DE/RES-06001-15).

Part 16: "Gateways for Supplementary Services", (DE/RES-06001-16).

Transposition dates	
Date of adoption of this ETS:	1 March 1996
Date of latest announcement of this ETS (doa):	31 July 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 January 1997
Date of withdrawal of any conflicting National Standard (dow):	31 January 1997

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1 Scope

This is a delta document detailing the deviations of the Trans-European Trunked Radio (TETRA) Call Completion on No reply (CCNR) supplementary service from the Standard ECMA 185 [2] stage 1 descriptions. Stage 1 is an overall service description from the users point of view but does not deal with the details of the human interface itself.

This ETS specifies the service description of the supplementary service and the procedures to be expected with successful and unsuccessful outcomes. In addition this ETS specifies the interactions with other TETRA supplementary services and inter-working considerations.

Charging principles are outside the scope of this ETS.

The CCNR supplementary service enables a calling user A, encountering a destination user B, that, though alerted, does not answer, to have the call completed when user B is available, without having to make a new call attempt.

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

[2] Standard ECMA 185 (December 1992): "Specification, Functional Model and Information Flows, Call Completion Supplementary Services".

3 Definitions and abbreviations

3.1 Definitions

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

bearer service: a type of telecommunication service that provides the capability for the transmission of signals between user-network interfaces.

Supplementary Service (SS): a supplementary service modifies or supplements a bearer service or a teleservice. A supplementary service cannot be offered to a customer as a stand alone service. It should be offered in combination with a bearer service or a teleservice.

Switching and Management Infrastructure (SwMI): all of the TETRA equipment for a Voice plus Data (V+D) network except for subscriber terminals. The SwMI enables subscriber terminals to communicate with each other via the SwMI.

NOTE : The SwMI may also make it possible for subscriber equipment to communicate via other transit networks to external applications. Mobile Stations (MS) can access the SwMI using the air interface.

teleservice: a type of telecommunications service that provides the complete capability, including terminal equipment functions, for communication between users according to agreed protocols.

3.2 Abbreviations

3.2.1 General abbreviations

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

ISDN	Integrated Services Digital Network
PTN	Private Telephone Network
SDL	(Functional) Specification and Description Language
SS	Supplementary Service

NOTE: The abbreviation SS is only used when referring to a specific supplementary service.

SwMI	Switching and Management Infrastructure
TETRA	Trans-European Trunked RAdio

3.2.2 Supplementary service abbreviations

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

AL	Ambience Listening
AoC	Advice of Charge
AP	Access Priority
AS	Area Selection
BIC	Barring of Incoming Calls
BOC	Barring of Outgoing Calls
CAD	Call Authorized by Dispatcher
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CFB	Call Forwarding on Busy
CFNRy	Call Forwarding on No Reply
CFNRc	Call Forwarding on Not Reachable
CFU	Call Forwarding Unconditional
CLIP	Calling Line Identification Presentation
CLIR	Calling/Connected Line Identification Restriction
COLP	COnnected Line identification Presentation
CR	Call Report
CRT	Call ReTention
CW	Call Waiting
DGNA	Dynamic Group Number Assignment
DL	Discreet Listening
HOLD	Call HOLD
IC	Include Call
LE	Late Entry
LSC	List Search Call
PC	Priority Call
PPC	Pre-emptive Priority Call
SNA	Short Number Addressing
TC	Transfer of Control
TPI	Talking Party Identification

4 Organisation of document

Clause 5 of this ETS refers every clause of the Standard ECMA 185 [2]. The subclause corresponds, subclause by subclause, to the clauses of the ECMA document (e.g. subclause 5.3 corresponds to ECMA clause 3). For each ECMA clause, the parts that are relevant to TETRA are listed, and any specific additions or deletions are described.

Where there are not detailed changes, clause 5 shall simply indicate if the ECMA clause applies or not.

In all cases, all subclause numbering corresponds to the ECMA clause numbering for clarity.

5 ECMA - 185 Delta

5.1 Scope

Applicable, except references to Call Completion to Busy Subscriber (CCBS).

The following text shall be added:

Other implementation options may be supported:

a) SS-CCNR may periodically ring user B, instead of monitoring user B's for a period of activity and inactivity. (This option may suffer if SS-CC recall is not used and the served user is unavailable when user B answers);

b) an indication of presence may be used by the network in order to begin the process of SS-CC recall e.g. by user B inserting his/her SIM card into the terminal;

c) any combination of all options.

5.2 Conformance

Not applicable.

5.3 References

Applicable.

5.4 Definitions

Applicable.

5.4.1 External definitions

Applicable.

5.4.2 Additional network feature

Applicable.

5.4.3 Busy

Applicable.

5.4.4 Call, basic call

Applicable.

5.4.5 Call completion

Applicable.

5.4.6 Originating number

Applicable.

5.4.7 Path reservation

Applicable.

5.4.8 Service retention

Applicable.

5.4.9 SS-CC recall

Applicable, except for the references to SS-CCBS.

5.4.10 User A

Applicable.

5.4.11 User B

Applicable.

5.5 List of acronyms

Applicable.

5.6 SS-CCBS stage 1 specification

Not applicable.

5.7 SS-CCNR stage 1 specification

Applicable.

5.7.1 Description

Applicable.

5.7.1.1 General description

Applicable. All references to Private Telephone Network (PTN) shall be replaced with Switching and Management Infrastructure (SwMI).

The following text shall be added:

Other implementation options may be supported:

a) SS-CCNR may periodically ring user B, instead of monitoring user B's for a period of activity and inactivity. (This option may suffer if SS-CC recall is not used and the served user is unavailable when user B answers);

b) an indication of presence may be used by the network in order to begin the process of SS-CC recall e.g. by user B inserting his/her SIM card into the terminal;

c) any combination of all options.

5.7.1.2 Qualifications on applicability to telecommunication services

Applicable with the following amendment:

This supplementary service shall be applicable to all individual TETRA circuit mode teleservices and bearer services and shall not be applicable to SDS.

5.7.2 Procedures

Applicable.

5.7.2.1 Provision/Withdrawal

This subclause shall be replaced by the following:

SS-CCNR may be provided after pre-arrangement with the service provider (by means of service profile control), or may be available generally to all users. SS-CCNR may be withdrawn on request of the served user or for administration reasons.

No subscription options shall be offered by the SwMI, and SS-CC recall shall be offered to the terminal which has invoked SS-CCNR.

5.7.2.2 Normal procedures

Applicable.

5.7.2.2.1 Activation, deactivation, definition, registration, interrogation and cancellation

This subclause shall be replaced by the following:

SS-CCNR shall be permanently activated upon provision. No information needs to be registered with the SwMI for this supplementary service. The supplementary service shall be deactivated upon withdrawal.

Upon interrogation the SwMI may provide the user with a list of outstanding SS-CCNR requests.

5.7.2.2.2 Invocation and operation

This subclause shall be replaced by the following:

When a call from user A fails because the destination user, user B, does not answer, the SwMI shall retain the call information provided by user A, for a period governed by the SS-CC retention timer. User A shall be able to request SS-CCNR during that period. User A shall also be able to request SS CCNR whilst user B is alerting.

On receipt of a request for SS-CCNR, the SwMI shall check whether it is possible to initiate the service, and if so shall send an acknowledgement to user A, start monitoring user B and start the SS CCNR service duration timer. The acknowledgement means that user A shall expect to receive a SS-CC recall if user B becomes not busy, after a subsequent period of activity, within the period of the SS-CCNR service duration timer.

Other implementation options may be supported:

a) SS-CCNR may periodically ring user B, instead of monitoring user B's for a period of activity and inactivity. (This option may suffer if SS-CC recall is not used and the served user is unavailable when user B answers);

b) an indication of presence may be used by the network in order to begin the process of SS-CC recall e.g. by user B inserting his/her SIM card into the terminal;

c) any combination of all options.

NOTE 14: The fact that user B is already being monitored, as a result of a call completion from another user, shall not cause rejection of the request from user A. The handling of multiple requests against the same user B shall be an implementation matter, typically involving some sort of queue arranged in chronological or priority order.

NOTE 15: The fact that user A has already invoked call completion against another user shall not cause rejection of any further requests for call completion from user A. The handling of multiple requests by the same user A shall be an implementation matter.

NOTE 16: The value of the SS-CC retention timer and the SS-CCNR duration timer shall be implementation specific.

After the SS-CCNR request has been acknowledged, user A shall be able to receive and initiate other calls.

A SwMI may provide user A with the ability to request a list of outstanding SS-CCNR requests that user A has invoked.

Remaining text shall be applicable, replacing all references to "PTN" with "SwMI".

5.7.2.2.3 Cancellation

Applicable.

5.7.2.3 Exceptional procedures

Applicable.

5.7.2.3.1 Activation, deactivation, definition, registration, interrogation and cancellation

Applicable.

5.7.2.3.2 Invocation and operation

5.7.2.3.2.1 Rejection of SS-CCNR service request

Applicable. Replace all references to "PTN" with "SwMI".

5.7.2.3.2.2 User A is busy on SS-CC recall

Applicable. Replace all references to "PTN" with "SwMI". Replace "not busy after a period of activity" with "available".

5.7.2.3.2.3 Network congestion

Applicable. Replace all references to "PTN" with "SwMI".

5.7.2.3.2.4 User B becomes busy after successful SS-CC recall

Applicable. Replace all references to "PTN" with "SwMI".

5.7.2.3.2.5 User B becomes busy during path reservation

Applicable. Replace all references to "PTN" with "SwMI".

5.7.2.3.2.6 Duplicate SS-CCNR requests

Applicable. Replace all references to "PTN" with "SwMI".

5.7.2.3.2.7 Other failure situations

Applicable. Replace all references to "PTN" with "SwMI". Replace "user B has still had no period of activity" with "user B was not available".

5.7.2.3.3 Cancellation

Applicable.

5.7.3 Interactions with other supplementary services

Applicable. Replace all references to "PTN" with "SwMI".

5.7.3.1 Calling Line Identification Presentation (SS-CLIP)

Applicable.

5.7.3.2 Calling/Connected Line Identification Restriction (SS-CLIR)

Applicable.

5.7.3.3 Connected Line Identification Presentation (SS-COLP)

Applicable.

5.7.3.4 Calling Name Identification Presentation (SS-CNIP)

Not applicable. Service shall not be available in TETRA.

5.7.3.5 Calling/Connected Name Identification Restriction (SS-CNIR)

Not applicable. Service shall not be available in TETRA.

5.7.3.6 Connected Name Identification Presentation (SS-CONP)

Not applicable. Service shall not be available in TETRA.

5.7.3.7 Call Forwarding Unconditional (SS-CFU)

Applicable.

5.7.3.8 Call Forwarding Busy (SS-CFB)

The first paragraph shall be replaced by the following:

If the call from user A to user B is diverted to user C by SS-CFB and user C is busy, then a SS-CCNR request made by user A shall be applied either to the diverted-to user C or to the originally called user B, whichever becomes available first.

The remainder of this clause shall be applicable.

5.7.3.9 Call Forwarding on No Reply (SS-CFNR$_y$)

Applicable.

5.7.3.10 Call Transfer (SS-CT)

Not applicable. Service shall not be available in TETRA.

5.7.3.11 Completion of Calls to Busy Subscribers (SS-CCBS)

Applicable. Replace all references to "PTN" with "SwMI".

5.7.3.12 Path Replacement (ANF-PR)

Not applicable. Service shall not be available in TETRA.

In addition the following TETRA supplementary service interactions shall be included.

5.7.3.13 Call Report (SS-CR)

Call completion on no reply shall not have any interaction with call report.

5.7.3.14 Talking Party Identification (SS-TPI)

Call completion on no reply shall not have any interaction with talking party identification.

5.7.3.15 Call Forwarding on Not Reachable (SS-CFNR$_C$)

If the call from user A to user B is diverted to user C by SS-CFNR$_C$ and user C does not answer, then a SS-CCNR request made by user A shall be applied to the diverted-to user C or to the originally called user B whichever becomes available first.

If user A invokes SS-CCNR whilst SS-CFNR$_C$ is activated against user A, or user A invokes SS-CCNR and subsequently activates SS-CFNR$_C$, and then becomes not reachable, the network shall wait until user A has become reachable before the provision of the SS-CC recall to user A.

5.7.3.16 List Search Call (SS-LSC)

User A shall be able to invoke SS-CCNR if the original call has failed due to the attendants in the list search call not answering the call.

5.7.3.17 Call Authorized by Dispatcher (SS-CAD)

If the original call placed by user A was given authorization by a dispatcher for completion, then subsequent invocation of SS-CCNR by user A to the authorized destination, shall not require further authorization by a dispatcher.

5.7.3.18 Short Number Addressing (SS-SNA)

Call completion on no reply shall not have any interaction with short number addressing.

5.7.3.19 Area Selection (SS-AS)

If user A invokes SS-CCNR to user B and subsequently user B moves outside of the selected area and after a period of activity becomes free, then the request shall be cancelled and user A shall receive a notification of the reason for cancellation.

5.7.3.20 Access Priority (SS-AP)

Call completion on no reply shall not have any interaction with access priority.

5.7.3.21 Priority Call (SS-PC)

Call completion on no reply shall not have any interaction with priority call.

5.7.3.22 Call Waiting (SS-CW)

Call completion on no reply shall not have any interaction with call waiting.

5.7.3.23 Call Hold (SS-HOLD)

Call completion on no reply shall not have any interaction with call hold.

5.7.3.24 Late Entry (SS-LE)

Call completion on no reply shall not have any interaction with late entry.

5.7.3.25 Transfer of Control (SS-TC)

Call completion on no reply shall not have any interaction with transfer of control.

5.7.3.26 Pre-emptive Priority Call (SS-PPC)

Call completion on no reply shall not have any interaction with pre-emptive priority call.

5.7.3.27 Include Call (SS-IC)

Call completion on no reply shall not have any interaction with include call.

5.7.3.28 Advice of Charge (SS-AoC)

Call completion on no reply shall not have any interaction with advice of charge.

5.7.3.29 Barring of Outgoing Calls (SS-BOC)

Call completion on no reply shall not have any interaction with. If user A is unable to make outgoing calls because SS-BOC has been activated against user A, then user A shall not be able to invoke SS-CCNR.

5.7.3.30 Barring of Incoming Calls (SS-BIC)

Call completion on no reply shall not have any interaction with barring of incoming calls.

5.7.3.31 Discreet Listening (SS-DL)

Not applicable.

5.7.3.32 Ambience Listening (SS-AL)

Call completion on no reply shall not have any interaction with ambience listening.

5.7.3.33 Dynamic Group Number Assignment (SS-DGNA)

Call completion on no reply shall not have any interaction with dynamic group number assignment.

5.7.3.34 Call Retention (SS-CRT)

Call completion on no reply shall not have any interaction with call retention.

5.7.4 Inter-working considerations

Applicable. Replace all references to "PTN" with "SwMI or PTN". SS-CCNR should be available across SwMIs if both networks support this service.

5.7.5 Overall SDL

Applicable.

History

Document history			
November 1994	Public Enquiry	PE 73:	1994-11-07 to 1995-03-03
December 1995	Vote	V 94:	1995-12-27 to 1996-02-16
April 1996	First Edition		

ISBN 2-7437-0634-1 - Edition complète
ISBN 2-7437-0591-4 - Partie 10
ISBN 2-7437-0615-5 - Sous-partie 23
Dépôt légal : Avril 1996