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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".**
- 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 to Busy Subscriber (CCBS) 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 European Telecommunication Standard (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 CCBS supplementary service enables a calling user A, encountering a busy destination user B, to have the call completed when user B becomes not busy, 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: 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.

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:

GTSI	Group TETRA Subscriber Identity
ISDN	Integrated Services Digital Network
ITSI	Individual TETRA Subscriber Identity
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
CNIP	Calling Name Identification Presentation
CNIR	Calling/Connected Name Identification Restriction
CONP	Connected Name Identification Presentation
COLP	COnnected Line identification Presentation
CR	Call Report
CRT	Call ReTention
CT	Call Transfer
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
PR	Path Replacement
SNA	Short Number Addressing
TC	Transfer of Control
TPI	Talking Party Identification

4 Organisation of this ETS

Clause 5 of this ETS refers to every clause of the Standard ECMA - 185 document [2]. The subclauses correspond 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 no detailed changes, clause 5 simply indicates 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 on No Reply (SS-CCNR).

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-CCNR.

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

Applicable.

5.6.1 Description

Applicable.

5.6.1.1 General description

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

5.6.1.2 Qualifications on applicability to telecommunication services

Applicable with the following amendments: This supplementary service shall be applicable to all TETRA circuit mode teleservices and bearer services.

5.6.2 Procedures

Applicable.

5.6.2.1 Provision/Withdrawal

This clause shall be replaced with the following:

SS-CCBS 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-CCBS may be withdrawn on request of the user or for administrative reasons.

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

5.6.2.2 Normal procedures

Applicable.

5.6.2.2.1 Activation, deactivation, registration and interrogation

This clause shall be replaced with the following:

SS-CCBS shall be permanently activated upon provision. No information shall be needed 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-CCBS requests.

5.6.2.2.2 Invocation and operation

The first paragraph shall be replaced with the following:

When a call from user A fails because the destination user, user B, is busy, 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-CCBS during that period. On receipt of a request for SS-CCBS during that period, 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-CCBS service duration timer. The acknowledgement means that user A can expect to receive a SS-CC Recall if user B becomes not busy within the period of the SS-CCBS service duration timer.

The remaining text shall be applicable.

5.6.2.2.3 Cancellation

Applicable.

5.6.2.3 Exceptional procedures

Applicable.

5.6.2.3.1 Activation, deactivation, registration and interrogation

Applicable.

5.6.2.3.2 Invocation and operation

5.6.2.3.2.1 Rejection of SS-CCBS service request

Applicable. All references to PTN shall be replaced with SwMI.

5.6.2.3.2.2 user A is busy on SS-CC recall

Applicable. All references to PTN shall be replaced with SwMI.

5.6.2.3.2.3 Network congestion

Applicable. All references to PTN shall be replaced with SwMI.

5.6.2.3.2.4 user B becomes busy after successful SS-CC recall

Applicable. All references to PTN shall be replaced with SwMI.

5.6.2.3.2.5 user B becomes busy during path reservation

Applicable. All references to PTN shall be replaced with SwMI.

5.6.2.3.2.6 Duplicate SS-CCBS requests

Applicable. All references to PTN shall be replaced with SwMI.

5.6.2.3.2.7 Other failure situations

Applicable. All references to PTN shall be replaced with SwMI.

5.6.2.3.3 Cancellation

Applicable.

5.6.3 Interactions with other supplementary services

Applicable. All references to PTN shall be replaced with SwMI.

5.6.3.1 Calling Line Identification Presentation (SS-CLIP)

Applicable.

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

Applicable.

5.6.3.3 Connected Line Identification Presentation (SS-COLP)

Applicable.

5.6.3.4 Calling Name Identification Presentation(SS-CNIP)

Not applicable. Service shall not be available in TETRA.

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

Not applicable. The service shall not be available in TETRA.

5.6.3.6 Connected Name Identification Presentation (SS-CONP)

Not applicable.

5.6.3.7 Call Forwarding Unconditional (SS-CFU)

Applicable.

5.6.3.8 Call Forwarding Busy (SS-CFB)

Applicable.

5.6.3.9 Call Forwarding on No Reply (SS-CFNR_y)

Applicable.

5.6.3.10 Call Transfer (SS-CT)

Not applicable. The service shall not be available in TETRA.

5.6.3.11 Completion of Calls on No Reply (SS-CCNR)

Applicable. All references to PTN shall be replaced with SwMI.

5.6.3.12 Path Replacement (ANF-PR)

Not applicable. The service shall not be available in TETRA.

In addition the following TETRA Supplementary Service interactions shall be included:

5.6.3.13 Call Report (SS-CR)

Call completion to busy subscriber shall not have any interaction with call report.

5.6.3.14 Talking Party Identification (SS-TPI)

Call completion to busy subscriber shall not have any interaction with talking party identification.

5.6.3.15 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 is busy, then a SS-CCBS request made by user A shall be applied either to the diverted-to user C or to the originally called user B if user B has become reachable.

If user A invokes SS-CCBS whilst SS-CFNR_C is activated against user A, or user A invokes SS-CCBS 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.

5.6.3.16 List Search Call (SS-LSC)

user A shall not be able to invoke SS-CCBS if the original call has failed due to the attendants in the list search call being busy.

5.6.3.17 Call Authorised by Dispatcher (SS-CAD)

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

5.6.3.18 Short Number Addressing (SS-SNA)

Call completion to busy subscriber shall not have any interaction with short number addressing.

5.6.3.19 Area Selection (SS-AS)

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

5.6.3.20 Access Priority (SS-AP)

Call completion to busy subscriber shall not have any interaction with access priority.

5.6.3.21 Priority Call (SS-PC)

Call completion to busy subscriber shall not have any interaction with priority call.

5.6.3.22 Call Waiting (SS-CW)

Call completion to busy subscriber shall not have any interaction with call waiting.

5.6.3.23 Call Hold (SS-HOLD)

Call completion to busy subscriber shall not have any interaction with call hold.

5.6.3.24 Late Entry (SS-LE)

Call completion to busy subscriber shall not have any interaction with late entry.

5.6.3.25 Transfer of Control (SS-TC)

Call completion to busy subscriber shall not have any interaction with transfer of control.

5.6.3.26 Pre-emptive Priority Call (SS-PPC)

Call completion to busy subscriber shall not have any interaction with pre-emptive priority call.

5.6.3.27 Include Call (SS-IC)

Call completion to busy subscriber shall not have any interaction with include call.

5.6.3.28 Advice of Charge (SS-AoC)

Call completion to busy subscriber shall not have any interaction with advice of charge.

5.6.3.29 Barring of Outgoing Calls (SS-BOC)

Not applicable. (If user A is unable to make outgoing calls because SS-BOC has been activated against user A, then it should be unlikely that user A shall be able to invoke SS-CCBS).

5.6.3.30 Barring of Incoming Calls (SS-BIC)

Call completion to busy subscriber shall not have any interaction with barring of incoming calls. If the served user also has SS-BIC activated it shall not prevent the receipt of the SS-CC Recall from the infrastructure in order to start the call completion process.

5.6.3.31 Discreet Listening (SS-DL)

Call completion to busy subscriber shall not have any interaction with discreet listening.

5.6.3.32 Ambience Listening (SS-AL)

Call completion to busy subscriber shall not have any interaction with ambience listening.

5.6.3.33 Dynamic Group Number Assignment (SS-DGNA)

Call completion to busy subscriber shall not have any interaction with dynamic group number assignment.

5.6.3.34 Call Retention (SS-CRT)

Call completion to busy subscriber shall not have any interaction with call retention.

5.6.4 Inter-working considerations

Applicable. All references to PTN shall be replaced with SwMI.

5.6.5 Overall SDL

Applicable.

History

Document history			
November 1994	Public Enquiry	PE 73:	1994-11-07 to 1995-03-03
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