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Širokopasovno digitalno omrežje z integriranimi storitvami (B-ISDN) - Protokol digitalne naročniške signalizacije št. 2 (DSS2) - Specifikacija krmiljenja več zveznega nosilca od točke do točke v okolju, kjer sta klic in nosilec ločena - 1. del: Specifikacija protokola

Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Point-to-point multiconnection bearer control specification in a separated call and bearer environment; Part 1: Protocol specification

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS).

The present document is part 1 of a multi-part standard covering the Digital Subscriber Signalling System No. two (DSS2) protocol; Point-to-point multiconnection bearer control specification in a separated call and bearer environment, as described below:

Part 1: "Protocol specification;

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification for the user";

Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user".

The Protocol specification, of the present document, builds upon the basic call control procedures defined in EN 300 443-1 [5] by adding protocol elements and procedures required to enable separate call and bearer control.

National transposition dates	
Date of adoption of this EN:	5 May 2000
Date of latest announcement of this EN (doa):	31 August 2000
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1 Scope

The present document specifies the procedures for establishing, maintaining and clearing of bearer connections to point-to-point multiconnection calls at the B-ISDN user-network interface.

It specifies the essential features, procedures, and messages required for controlling bearer connections associated to point-to-point multiconnection calls in a functionally separated call and bearer control environment.

The procedures specified by the present document are applicable at the interface between a B-ISDN terminal equipment and a B-ISDN public network (coincident S_b and T_b reference point) as well as at the interface between a B-ISDN customer network and a B-ISDN public network (i.e. at the T_b reference point).

The separated bearer control protocol defined by the present document is applicable to control bearers associated to a multiconnection call which is controlled independently by means of a separate call control protocol.

2 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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] ETSI EN 302 091-1: "Broadband Integrated Services Digital Network (B-ISDN) and Broadband Private Integrated Services Network (B-PISN); Digital Subscriber Signalling System No. two (DSS2), Broadband Inter-Exchange Signalling (B-QSIG), and Signalling System No. 7 (SS7); Prenegotiation; Part 1: Protocol specification".

[2] ETSI ETS 300 437-1: "Broadband Integrated Services Digital Network (B-ISDN); Signalling ATM Adaptation Layer (SAAL); Service Specific Co-ordination Function (SSCF) for support of signalling at the User-Network Interface (UNI); Part 1: Specification of SSCF at UNI [ITU-T Recommendation Q.2130 (1995), modified]".

[3] ETSI ETS 301 067-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; Negotiation during call/connection establishment phase; Part 1: Protocol specification [ITU-T Recommendation Q.2962 (1996), modified]".

[4] ETSI ETS 301 003-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; Peak cell rate modification by the connection owner; Part 1: Protocol specification [ITU-T Recommendation Q.2963.1 (1996), modified".

[5] ETSI EN 300 443-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for basic call/bearer control; Part 1: Protocol specification [ITU-T Recommendation Q.2931 (1995), modified]".

[6] ITU-T Recommendation I.413: "B-ISDN user-network interface".

[7] ETSI EN 301 068-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; ATM transfer capability and traffic parameter indication; Part 1: Protocol specification [ITU-T Recommendations Q.2961.1 (1995), Q.2961.2 (1997), Q.2961.3 (1997), Q.2961.4 (1997), modified]".

3 Definitions

For the purposes of the present document, the following terms and definitions apply:

connection state: state for each connection (see subclause 7.2) which is known by the layer 3 Bearer Control entity. The different Connection states correspond to the call/connection states defined in clause 2 of EN 300 443-1 [5], i.e. the states of the Q.2931 protocol entities on both sides of the UNI and relate to each call associated bearer.

bearer identifier: identifier used to identify a bearer instance to which a particular bearer establishment request relates between two CC entities. The value of the bearer identifier is significant between two adjacent CC entities. The value is unique within a call between two adjacent CC entities.

call association: identifier used to identify a multiconnection call instance to which a particular bearer establishment request relates between two CC entities. The value of a call identifier is significant between two adjacent call control entities. The value carried in the call association is significant between two adjacent CC entities.

preceding side: with respect to a given bearer, the side of an interface between two bearer control entities from which bearer establishment across the interface originates.

succeeding side: with respect to a given bearer, the side (opposite to the preceding side) of an interface between two bearer control entities which receives bearer establishment request across the interface.

4 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ATM	Asynchronous Transfer Mode
BC	Bearer Control
CC	Call Control
B-ISDN	Broadband Integrated Services Digital Network
DSS2	Digital Subscriber Signalling System No 2
SAAL	Signalling ATM Adaptation Layer
SDL	Specification and Description Language
UNI	User-Network Interface

5 Description

5.1 Application to interface structure

The bearer control procedures apply to the interface structures defined in ITU-T Recommendation I.413 [6]. They use the functions and services provided by layer 2 (i.e. the SAAL). The layer 3 procedures request the services of layer 2 and receive information from layer 2 using the primitives defined in ETS 300 437-1 [2]. These primitives are used to illustrate the communication between the protocol layers and are not intended to specify or constrain implementations.

5.2 Capabilities supported by the present document

The present document builds upon the basic point-to-point combined call/bearer control protocol defined in EN 300 443-1 [5] to enable the separate control of bearers being associated to a multiconnection call.

5.3 General overview

The present document provides the procedures, messages and information elements needed for establishing, maintaining and clearing of bearer connections being associated with a point-to-point multiconnection call.

After a multiconnection call has been initiated or has progressed to the active state, bearer connections can be added to the call by individual bearer connection set-up requests from the calling party or the called party, using the separated bearer control protocol specified in the present document, which is based on the procedures in EN 300 443-1 [5]. Each new connection establishment request shall use a new call reference (see clause 4 of EN 300 443-1 [5]). Bearers may be established or released from the multiconnection call at any time while not modifying the call state. New connections can be established by the calling party or the called party by sending a SETUP message as defined in EN 300 443-1 [5], which in addition contains the call association information element in order to associate that bearer with the multiconnection call. Connections may be released from the call by the calling party or the called party by sending a RELEASE message as defined in EN 300 443-1 [5].

The individual bearers are controlled independently. In particular, multiple bearer connection establishment requests may be initiated in parallel (i.e. the requesting party does not need to wait for a response related to one bearer connection set-up request before issuing another one). Similarly, multiple bearer connection release requests may be pending at the same time (i.e. the requesting party does not need to wait for a response related to one release connection request before issuing the next one).

Any ATM transfer capability available at the interface may be requested independently for each of the bearers associated with a multiconnection call, using appropriate connection characteristics parameters indication as specified in EN 301 068-1 [7]. Furthermore, the ATM traffic parameter negotiation features defined in ETS 301 067-1 [3] apply independently to each bearer at establishment time, as does ATM traffic parameter negotiation during the active state of the connection, using the ETS 301 003-1 [4] defined features.

6 Operational requirements

6.1 Provision and withdrawal

A bilateral agreement between the user and the network provider concerning the availability of the multiconnection call capabilities is assumed to exist. This may be the subject of a subscription option or may be made generally available.

6.2 Requirements on the originating network side

None beyond the support of the multiconnection call capability related control protocols.

6.3 Requirements on the destination network side

None beyond the support of the multiconnection call capability related control protocols.

7 Primitive definitions and state definitions

7.1 Primitive definitions

Clause 8 of EN 300 443-1 [5] shall apply. No additional primitives between DSS2 layer 3 and the Signalling ATM adaptation Layer are defined for the purpose of the present document.

7.2 State definitions

The bearer connection states that may exist on the user or network side of the user-network interface coincide with the call/connection states defined in clause 2 of EN 300 443-1 [5]. The bearer control entity maintains the current state of each individual bearer independently.

The bearer connection states defined in subclause 2.2 of EN 300 443-1 [5] (corresponding to the additional call/connection states) relating to interworking requirements are not applicable although they may be available if the point-to-point combined call/bearer control capability (using the Q.2931 basic call control protocol) interworking with existing services or networks (i.e. operating exclusively the combined call/bearer control protocol) is supported. However such interworking requirements are beyond the scope of the present document.

8 Coding requirements

8.1 Messages

Messages are defined in accordance with the principles given by the introductory paragraph in clause 3 of EN 300 443-1 [5]. Only changes to messages defined in clause 3 of EN 300 443-1 [5] are specified in subclause 8.1.1 f.f.

8.1.1 Modification to messages defined in EN 300 443-1

The following modifications apply to the messages defined in subclause 3.1 of EN 300 443-1 [5]. However they do not apply, unless otherwise explicitly stated, to the messages relating to the support of 64 kb/s based ISDN circuit-mode services (subclause 3.2 of EN 300 443-1 [5]) even if the interworking of Multiconnexion calls with these services (or interworking with networks providing these services) is supported.

Table 8-1 lists the existing clause 3 of EN 300 443-1 [5] messages that have their contents modified to support the establishment/release of bearer connections in a point-to-point multiconnection call control environment by means of separated call and bearer control protocols.

Table 8-1: Modified EN 300 443-1 [5] messages

Message	Reference
SETUP	8.1.1.1

8.1.1.1 SETUP

This message is sent by the user to the network and by the network to the user to initiate an individual bearer connection establishment.

See table 8-2 for additions to the structure of this message shown in table 3-8 of EN 300 443-1 [5].