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**Širokopasovno digitalno omrežje z integriranimi storitvami (B-ISDN) -
Signalizacijske zahteve za storitve B-ISDN - 1. del: Nabor zmožnosti 2 (CS2)**

Broadband Integrated Services Digital Network (B-ISDN); Signalling requirements for B-ISDN services; Part 1: Capability Set 2 (CS2)

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Contents

Foreword	9
1 Scope	11
2 Abbreviations.....	11
3 B-ISDN signalling requirements objectives	12
3.1 B-ISDN Services Requirements	12
3.2 B-ISDN Bearer Services Signalling Requirements	13
3.3 ITU-T SG 13 Proposed Schedule for B-ISDN Signalling Capabilities	17
3.4 B-ISDN Signalling Capabilities.....	18
4 Information model	25
4.1 General	25
4.1.1 Object Modelling and Signalling Requirements.....	25
4.1.2 Views of a Call.....	25
4.2 Description of Objects in Information Model.....	26
4.2.1 Call	27
4.2.2 Remote Party	27
4.2.3 Attachment	27
4.2.4 Service Module.....	27
4.2.5 Service Component.....	27
4.2.6 Network Connection	28
4.2.7 Network Connection Group.....	28
4.2.8 Participation.....	28
4.3 Descriptions of Attributes.....	28
4.3.1 Attributes of Call Objects.....	28
4.3.1.1 Call Identifier (Call ID).....	28
4.3.1.2 List of Remote Parties	28
4.3.1.3 Local Party Address.....	28
4.3.1.4 Telecommunications Service Type.....	28
4.3.1.5 List of Service Components.....	28
4.3.1.6 List Network Connection Groups.....	28
4.3.2 Attributes of Remote Party Objects.....	28
4.3.2.1 Remote Party Reference Identifier	28
4.3.2.2 Remote Party Address.....	28
4.3.2.3 Remote Party Type.....	29
4.3.3 Attributes of Attachment Objects.....	29
4.3.4 Attributes of Service Module Objects	29
4.3.4.1 Service Module Identifier	29
4.3.4.2 List of Service Components.....	29
4.3.4.3 Multiplexing Method.....	29
4.3.5 Attributes of Service Component Objects	29
4.3.5.1 Service Component Identifier	29
4.3.5.2 Service Component Characteristics	29
4.3.5.3 Service Traffic Descriptor Requirements.....	29
4.3.5.4 Service QoS Descriptor Requirements.....	29
4.3.6 Attributes of Network Connection Objects	29
4.3.6.1 Network Connection Identifier	29
4.3.6.2 List of Service Modules.....	30
4.3.6.3 User (TE) - Oriented Low Layer Information	30
4.3.6.3.1 Network Layer Information.....	30
4.3.6.3.2 AAL Layer Information	30
4.3.6.4 Network-Oriented Low Layer Information.....	30
4.3.6.4.1 Network Layer Information.....	30
4.3.6.4.2 AAL Layer Information	30
4.3.6.4.3 ATM Layer Information	30

	4.3.6.4	Bearer Service Subcategory	30
	4.3.6.5	Directionality Indicator	30
	4.3.6.6	Transit Network Identifier	30
	4.3.6.7	ATM Connection Topology Type	31
	4.3.6.8	Local Attachment	31
4.3.7		Attributes of Network Connection Group Objects	31
	4.3.7.1	Network Connection Group Identifier	31
	4.3.7.2	List of Network Connection Identifiers	31
4.3.8		Attributes of Participation Objects	31
5		Functional signalling model	31
5.1		Description of the Stage 2 Functional Model	31
5.2		Description of Functional Entities	35
5.3		Information Flow Strata for Capability Set 2	36
6		Information flow elements	37
6.1		Information Flows and FE actions for Release 1 services	37
6.2		Information Flow Conventions for Capability Set 2 services	37
	6.2.1	Convention of Reference Direction	37
	6.2.2	Convention for ATM Switch Through	38
6.3		Description of Information Flows	38
	6.3.1	Call-&Bearer-Setup Information Flow Sequence	43
	6.3.2	Call-Setup Information Flow Sequence	43
	6.3.3	Add-Bearer-to-Call Information Flow Sequence	43
	6.3.4	Add-Party-to-Bearer Information Flow Sequence	43
	6.3.5	Attach-Party-to-Bearer Information Flow Sequence	43
	6.3.6	Add-Party-to-Call Information Flow Sequence	43
	6.3.7	Add-Party-&Bearer-to-Call Information Flow Sequence	43
	6.3.8	Detach-Party-from-Bearer	43
	6.3.9	Release-Bearer	43
	6.3.10	Release-Party-from-Call	43
	6.3.11	Release-Call	43
	6.3.12	Re-Negotiate-Bearer	43
	6.3.13	Modify-Bearer	44
	6.3.14	Call-&Bearer-Setup-Remote	44
	6.3.15	Add-Bearer-to-Call-Remote	44
	6.3.16	Add-Party-to-Bearer-Remote	44
	6.3.17	Attach-Party-to-Bearer-Remote	44
	6.3.18	Add-Party-&Bearer-to-Call-Remote	44
	6.3.19	Detach-Party-from-Bearer-Remote	44
	6.3.20	Release-Bearer-Remote	44
	6.3.21	Interrogation-Terminating-End-Point	44
	6.3.22	Look-Ahead	44
	6.3.23	Report-End/Edge	45
	6.3.24	Report-Link	45
	6.3.25	Notify-Party-Change	45
	6.3.26	Notify-Bearer-Change	45
	6.3.27	Notify-Bearer-Modified	45
6.4		Relationship between Parameters of Information Flows and Stage 2 model	45
6.5		Information Flow and Stage 2 Model	47
6.6		Information Parameters for Information Flows	48
7		Functional entity actions	61
7.1		Simultaneous Call and Connection Establishment	62
	7.1.1	Call and Network Connection Group Establishment of Type 1 Connections	62
	7.1.1.1	Call and Network Connection Group Establishment - Single Network Connection Group - Without "Look Ahead"	62
	7.1.1.2	Call and Network Connection Group Establishment - Single Network Connection Group - With "Look Ahead"	64
	7.1.1.3	Call and Network Connection Group Establishment - Single Network Connection Group - Third Party	66

7.1.2	Call and Network Connection Group Establishment of Type 2 Network Connection Groups	69
7.1.2.1	Call and Network Connection Group Establishment Single Network Connection Group - Originating Node Branch Root Party.....	69
7.1.2.2	Call and Network Connection Group Establishment Single Network Connection Group - Relay Node Branch Root	71
7.1.2.3	Call and Network Connection Group Establishment Single Network Connection Group - Relay Node Branch Leaf.....	73
7.1.2.4	Call and Network Connection Group Establishment Single Network Connection Group - Relay Node Branch Third.....	76
7.2	Addition of a new Network Connection (Group) to an existing Call with attachment of existing Parties to the Network Connection (Group).....	78
7.2.1	Addition of a Type 1 Network Connection Group to an existing call	78
7.2.1.1	Addition of one point-to-point Network Connection Group requested by the Call Initiating Party	79
7.2.1.2	Addition of an Network Connection Group to an existing Call - Without "Look Ahead" and with Notify - With Establishment of a new Route in the Network.....	80
7.2.1.3	Addition of an Network Connection Group to an existing Call - Third Party.....	82
7.2.2	Addition of a Type 2 Network Connection Group to an existing call	85
7.2.2.1	Addition of an Network Connection Group to an existing Call - Requesting Serving Node Branch Root Party	85
7.2.2.2	Addition of an Network Connection Group to an existing Call - Relay Node Branch Root.....	87
7.3	Addition of one Network Connection to an Existing Network Connection Group with attachment of existing Parties to the new Network Connection.....	89
7.3.1	Addition of one Type 1 Network Connection.....	89
7.3.1.1	Addition of one point-to-point Network Connection requested by the Call Initiating Party	90
7.3.2	Addition of one Type 2 Network Connection	91
7.3.2.1	Addition of one point to multipoint Network Connection requested by the Root of the new Network Connection	91
7.4	Addition of one or more new Parties to an Existing Call with Attachment to an Existing Network Connection - With or without network Look-ahead.....	93
7.4.1	Addition of one or more new Parties and attachment to a Type 1 Network Connection	93
7.4.1.1	Add one new Party requested by a Party which will be the Root of the Type 1 Network Connection (without network Look Ahead)	93
7.4.2	Addition of one or more new Parties and attachment to a Type 2 Network Connection	95
7.4.2.1	Add one or more new Parties requested by the call initiating Party	95
7.5	Attachment of one or more existing Parties to an existing Network Connection	95
7.5.1	Attachment of one or more existing Parties to a Type 1 Network Connection	95
7.5.1.1	Attachment of one existing Party requested by a Party which will be the Root of the Type 1 Network Connection...	96
7.5.2	Attachment of one or more existing Parties to a Type 2 Network Connection	97
7.5.2.1	Attachment of one existing Party requested by the call initiating Party	97
7.6	Call Establishment without any Network Connection Group(s)	97
7.6.1	Two-Party Call-Only Establishment.....	98
7.6.2	Three-or-More-Party Call-Only Establishment	99
7.7	Addition of a Party to a Call without Attachment to any Network Connection Group(s) ..	100
7.8	Detachment of a Party from an Existing Connection	100
7.8.1	Detachment Requested by the Root of the Connection.....	100
7.8.1.1	Root Party Requests Detachment from the Connection....	101
7.8.1.2	Root Party Requests that a Leaf be Detached from the Connection.....	102

7.8.2	Detachment Requested by a Leaf of the Connection	102
7.8.2.1	A Leaf Party Requests that it be Detached from a Connection	103
7.8.2.2	A Leaf Party Requests that the Root be Detached from the Connection	104
7.8.2.3	A Leaf Party Requests a Leaf be Detached from the Connection	105
7.8.3	Detachment Requested by a Party not Attached to the Connection	106
7.8.3.1	A Party Not Attached to a Connection Requests that the Root Party be Detached	106
7.8.3.2	A Party Not Attached to a Connection Requests that a Leaf be Detached	107
7.9	Release of the Connection from an Existing Call	108
7.9.1	Release of a Point-to-point Connection from an existing Call	108
7.9.2	Release of a Point-to-multi-point Connection from an Existing Call	108
7.9.2.1	Release of a Connection requested by the Party Associated with the Root	109
7.9.2.2	Release of a Connection Requested by a Leaf Party that is the Connection Owner	110
7.9.2.3	Release of a Connection Requested by a Leaf Party that is not the Connection Owner	111
7.9.2.4	Release of a Connection Requested by a Party not attached to the Connection	112
7.10	Release of a Party from an existing call	112
7.10.1	General rules for release of a Party	112
7.10.2	Release of a Party from a Call requested by the Call or Party Owner	113
7.10.2.1	Release of a Party that is the leaf party of a Type 2 Connection by the Call Owner	113
7.10.3	Release of a Party from a Call requested by the Party to be released	114
7.10.3.1	Release of a Party that is the Connection owner but not the root of a Type 2 Connection	114
7.11	Release of a Call	114
7.11.1	General rules for releasing a call	114
7.11.2	Release of a Call without any connections	115
7.11.3	Release of a Call with multiple Type 1 connections	116
7.11.3.1	Release of a Call with two Type 1 connections between different Parties	116
7.11.3.2	Release of a Call Requested by the Connection owner	117
7.11.4	Release of a Call with Point to multipoint connections	118
7.11.4.1	Release of a Call where the call owner is not the root of the connection	118
7.12	Look Ahead Procedures	118
7.12.1	Look Ahead without State Change	119
7.12.2	Look Ahead with State Change	121
7.12.2.1	Human User Version	121
7.12.2.2	Non-Human User Version	123
8	Signalling interworking requirements	124
8.1	Introduction	124
8.1.1	Possible solutions	124
8.1.2	Communication scenarios	125
8.2	N-ISDN (64 kbit/s based) Interface Requirements	126
8.2.1	Interworking requirements for Access signalling	129
8.2.2	Interworking requirements for Network signalling	129
8.3	Interworking of Release 1 and Release 2	130
8.3.1	Requirements for B-ISDN signalling protocol evolution	130
8.3.2	Scenarios for Interworking	130
8.3.2.1	Scenario A	130
8.3.2.2	Scenario B	131
8.3.2.3	Scenario C	131
8.3.2.4	Scenario D	132
8.3.3	Support of Release 2 services by using Release 1 equipment	132

Annex A: SDL diagrams supporting atomic actions	133
A.1 Introduction.....	133
A.2 Generic Information Model Object	135
A.3 FEA Application Part	137
A.4 SDL for Co-ordinators	139
A.5 SDL for a Subordinate.....	143
A.6 SDL for Superior.....	145
Annex B: General connection types for possible future application	146
Annex C: Bibliography	150
History.....	151

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Foreword

This ETSI Technical Report (ETR) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI). It is based on contribution to ITU-T Study Group 11.

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

This ETR is part 1 of a multi-part ETR covering the signalling requirements for B-ISDN services as described below:

Part 1: "Capability Set 2 (CS2)";

NOTE: Additional parts may cover the further development of the B-ISDN services.

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1 Scope

This ETSI Technical Report (ETR) contains a description of the Broadband Integrated Services Digital Network (B-ISDN) signalling requirements for Capability Set 2 (CS2). These requirements are to be used in the development of the appropriate peer-to-peer and layer-to-layer signalling protocols. These requirements are based on the requirements from ITU-T Study Groups 1 and 13, especially the available stage 1 definitions listed in subclause 3.1.

The following services/capabilities are identified. These will impose signalling requirements in B-ISDN.

- a) Establishment of on demand connections.
Demand a call between exactly two users which is supported by a single point-to-point connection.
- b) Support of connections configurations on a point-to-point and point-to-multipoint basis.
- c) Support of symmetric and asymmetric connections (e.g. low or zero bandwidth in one direction and high bandwidths in the other).
- d) To be able to establish a call and then later add bearers.
- e) Specification of Quality of Service (QoS) class, etc.

NOTE: For integration of 64 kbit/s based N-ISDN services and B-ISDN with a broadband signalling protocol, the supplementary services itemized in CCITT Recommendation Q.767 according to the most recent stage 1 and stage 2 recommendation should be supported.

2 Abbreviations

For the purposes of this ETR, the following abbreviations apply:

AAL	ATM Adaptation Layer
AC	Application Control
ATM	Asynchronous Transfer Mode
B-ISDN	Broadband Integrated Services Digital Network
BCLB	Broadband ConnectionLess Bearer
BCOB	Broadband Connection Oriented Bearer
CBR	Constant Bit Rate
CC	Call Control
CCR	Commitment, Concurrency and Recovery
CRCG	Common Route Connections Group
CS2	Capability Set 2
DC	enD-to-end Control
DCA	enD Control Agent
EC	Edge-to-edge Control
FE	Functional Entity
ID	IDentifier
IN	Intelligent Network
IWU	Inter Working Unit
LBA	Local Bearer Access
LC	Link-by-link Control
LCA	Link Control Agent
LEX	Local EXchange
LLC	Lower Layer Component
N-ISDN	Narrowband ISDN
NA	Not Applicable
NNI	Network-Network Interface
NSAP	Network Service Access Point
NT	Network Termination
OAM	Operations, Administration and Management
PC	Presentation Control
PCA	Presentation Control Agent
PDH	Pleisiochronous Digital Hierarchy
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RLS	Release
SAP	Service Access Point

SAR	Segmentation And Reassembly
SC	Service Component
SDH	Synchronous Digital Hierarchy
SDL	Specification and Description Language
SDU	Service Data Unit
SM	Service Module
SMDS	Switched Multi-megabit Data Service
TE	Terminal Equipment
TEI	Terminal Equipment Identifier
TMN	Telecommunication Management Network
UNI	User-Network Interface
VBR	Variable Bit Rate
VC	Virtual Channel
VCC	Virtual Channel Connection
VCI	Virtual Channel Identifier
VP	Virtual Path
VPC	Virtual Path Connection
VPI	Virtual Path Identifier

3 B-ISDN signalling requirements objectives

3.1 B-ISDN Services Requirements

General service characteristics that need to be addressed in the development of B-ISDN Signalling CS2 are as follows:

- signalling Support for Bearer Service Classes X, A, B, C, and D for the connection types identified below. The connection types are defined in table 3.

Table 1: Bearer Service Classes and Connection Types

Bearer Service Sub-categories	Connection Types	
	Type 1	Type 2
Class X, A, B	✓	✓
Class C assured service	✓	--
Class C unassured service	✓	✓
Class D (dial up only)	✓	✓

- service Interworking with N-ISDN which is presently restricted to the 10 Supplementary Services defined in Broadband Release 1:
 - Calling Line Identification Presentation;
 - Calling Line Identification Restriction;
 - Connected Line Presentation;
 - Connected Line Restriction;
 - Direct Dialling In;
 - Multiple Subscriber Number;
 - Terminal Portability;
 - Closed User Group;
 - Subaddressing;
 - User to User Signalling Service 1;
- Interworking with Frame Relaying, X.25 and 64 kbit/s circuit mode bearer services of N-ISDN.

For additional information about the service specific requirements driving Broadband CS2, the following draft Recommendations for B-ISDN services should be considered:

F.310	(Broadband Videotex Service)
F.722	(Broadband Videotelephony)
F.732	(Broadband Videoconference)
F.811	(Broadband connection oriented bearer service)
F.812	(Broadband connectionless data bearer service)
F.821	(Broadband TV distribution service)
F.822	(Broadband HDTV)

On an interworking basis, the following services should also be considered:

I.122	(Frame Relay Service)
I.555	(Interworking with Frame Relay)
I.580	(Interworking with N-ISDN)
X.2	(Data Communications Services)

3.2 B-ISDN Bearer Services Signalling Requirements

The broadband connection oriented bearer service categories provide unrestricted transfer of user information over a B-ISDN Virtual Path, Virtual Channel, or Common Route Connection Group (CRCG) connection between two or more parties connected at the Sb/Tb reference points. The three forms of B-ISDN connections are illustrated in figure 1.

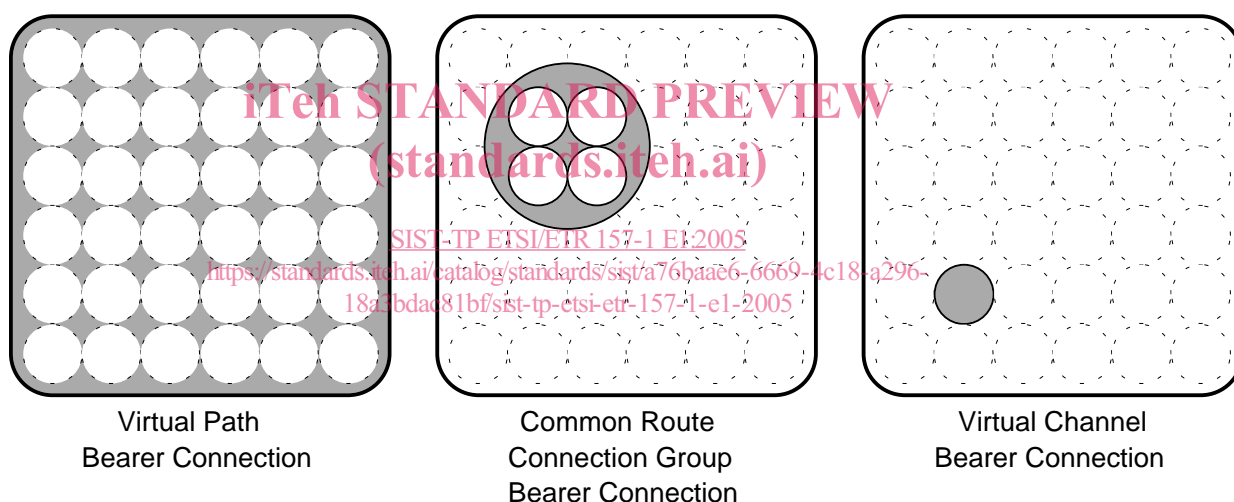


Figure 1: B-ISDN Bearer Connections

- Virtual Channel Connection: A single Virtual Channel is provided by the network as a separate entity.
- CRCG Bearer Connection: CRCGs provide a constrained differential delay service for a selected group of connections. This is accomplished by using the same route for VC connections in a CRCG from the requesting party to a requested party. Not all connections in a CRCG need to be established simultaneously. A user may wish to establish a video connection in addition to an already existing speech connection. It should be possible to indicate, that the video connection will be routed via the same route as the existing speech connection. Within Capability Set 2, the following rules apply:
 - no re-routing is allowed when adding a party or a Network Connection Group; and
 - a CRCG may have VC connections of different connection types; however all roots of Type 2 connection must be attached at the same party;
 - a CRCG may consist of one connection only;
 - every connection belongs to only one CRCG.