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**Information technology —  
Telecommunications and information  
exchange between systems — Broadband  
Private Integrated Services Network —  
Inter-exchange signalling protocol —  
Basic call/connection control**

*Technologies de l'information — Télécommunications et échange  
d'information entre systèmes — Réseau privé à large bande à intégration  
de services — Protocole de signalisation d'échange — Appel de  
base/contrôle de connexion*

Contents

	Page
Foreword	viii
Introduction	ix
1. Scope	1
2. Conformance	2
3. Normative references	2
3.1 References from ISO, IEC or ITU-T	2
3.2 References from other sources	3
4. Definitions	3
4.1 Definitions in PNNI 1.0	3
4.2 Other external definitions	3
4.3 Other definitions	3
5. List of acronyms	5
6. General Principles	6
6.1 Protocol model	7
6.2 Services provided to CCH	8
6.3 Services required of the SAAL	9
6.4 Protocol Control states	9
6.4.1 Call/connection states	9
6.4.2 Additional call/connection states relating to the provision of N-PISN services	9
6.4.3 States for restart initiation	9
6.4.4 States for restart response	9
6.5 CCH states at a Transit PINX	9
6.5.1 TCC_Idle (0)	10
6.5.2 TCC_Incoming_Call_Proceeding (4)	10
6.5.3 TCC_Transit_Call_Proceeding (5)	10
6.5.4 TCC_Call_Alerting (6)	10
6.5.5 TCC_Call_Active (7)	10
6.5.6 TCC_Await_Incoming_Release (8)	10
6.5.7 TCC_Await_Outgoing_Release (9)	10

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6.5.8 TCC_Await_Two-Way_Release (10)	10
6.6 Additional CCH states relating to the provision of N-PISN services at a Transit PINX	10
6.6.1 TCC_Await_Digits (1)	10
6.6.2 TCC_Await_Additional_Digits (2)	10
6.6.3 TCC_Overlap (3)	10
<b>7. Message functional definitions and content</b>	<b>10</b>
7.1 Messages for B-QSIG call/ connection control	11
7.1.1 ALERTING	11
7.1.2 CALL PROCEEDING	11
7.1.3 CONNECT	11
7.1.4 RELEASE	11
7.1.5 RELEASE COMPLETE	11
7.1.6 SETUP	11
7.1.7 NOTIFY	12
7.1.8 PROGRESS	12
7.2 Additional or modified messages related to the support of 64 kbit/s based PISN circuit-mode services	13
7.2.1 ALERTING	13
7.2.2 CONNECT	13
7.2.3 PROGRESS	14
7.2.4 RELEASE	14
7.2.5 SETUP	14
7.2.6 INFORMATION	14
7.2.7 SETUP ACKNOWLEDGE	15
7.3 Messages for point-to-multipoint call/connection control	15
7.3.1 ADD PARTY	15
7.3.2 ADD PARTY ACKNOWLEDGE	16
7.3.3 PARTY ALERTING	16
7.3.4 ADD PARTY REJECT	16
7.3.5 DROP PARTY	16
7.3.6 DROP PARTY ACKNOWLEDGE	16
7.4 Messages used with the global call reference	16
<b>8. General message format and information elements coding</b>	<b>16</b>
8.1 Overview	16
8.2 Protocol discriminator	16
8.3 Call reference	17
8.4 Message type, and message length	17
8.4.1 Message type	17
8.4.2 Message length	17
8.5 Variable length information elements for B-ISDN environment	17
8.5.1 Coding rules	17

8.5.2 Extensions of codesets	17
8.5.3 Broadband-locking shift procedure	17
8.5.4 Broadband-non-locking shift procedure	18
8.5.5 ABR additional parameters	18
8.5.6 ABR setup parameters	18
8.5.7 Alternative ATM traffic descriptor	18
8.5.8 ATM adaptation layer parameters	18
8.5.9 ATM traffic descriptor	18
8.5.10 Broadband bearer capability	18
8.5.11 Broadband high layer information (B-HLI)	18
8.5.12 Broadband low layer information (B-LLI)	18
8.5.13 Broadband repeat indicator	18
8.5.14 Broadband sending complete	18
8.5.15 Call state	18
8.5.16 Called party number	19
8.5.17 Called party subaddress	20
8.5.18 Calling party number	20
8.5.19 Calling party subaddress	20
8.5.20 Cause	20
8.5.21 Connected number	20
8.5.22 Connected subaddress	21
8.5.23 Connection identifier	21
8.5.24 Connection scope selection	21
8.5.25 End-to-end transit delay	21
8.5.26 Extended Quality of service (QOS) parameter	21
8.5.27 Minimum acceptable ATM traffic descriptor	21
8.5.28 Notification indicator	21
8.5.29 Quality of service (QOS) parameter	21
8.5.30 Restart indicator	21
8.5.31 Transit network selection	21
8.5.32 OAM traffic descriptor	22
8.5.33 Progress indicator	22
8.5.34 Calling party soft PVPC or PVCC	22
8.5.35 Called party soft PVPC or PVCC	22
8.6 Information Elements for the support of 64 kbit/s based ISDN circuit mode services	22
8.6.1 Narrow-band bearer capability	22
8.6.2 Narrow-band high layer compatibility	22
8.6.3 Narrow-band low layer compatibility	22
8.6.4 Progress indicator	22
8.7 Information Elements for Point-to-Multipoint Call/connection control	22

<b>9. Protocol control procedures for B-QSIG point-to-point calls/connections</b>	<b>22</b>
9.1 Establishment of a signalling AAL	23
9.2 Call/Connection establishment	23
9.2.1 Handling of a PROGRESS message	23
9.2.2 Call/connection failure	23
9.3 Call/Connection clearing	24
9.4 Call/connection collisions	24
9.5 Restart procedure	24
9.6 Handling of error conditions	24
9.6.1 Sending a STATUS message	24
9.6.2 Determination of protocol state compatibility on receipt of a STATUS message containing a call reference other than the global call reference	24
9.7 Error procedures with explicit action indication	25
9.8 Handling of messages with insufficient information	25
9.9 Notification procedures	25
9.10 Notification of interworking	25
9.11 List of Timers	25
<b>10. Call/connection Control Procedures for Point-to-Multipoint Calls</b>	<b>26</b>
<b>11. Procedures for the support of 64 kbit/s based circuit mode basic services in B-PISN and interworking between N-PISNs and B-PISNs</b>	<b>26</b>
11.1 Introduction	26
11.2 Use of information elements for N-PISN services	27
11.2.1 General aspects	27
11.2.2 Bearer service related information	27
11.2.3 Low layer related information	29
11.2.4 Higher layer related information	31
11.2.5 Handling of inconsistent combination of service parameters	31
11.3 Interworking PINX procedures for the succeeding side	31
11.3.1 Mapping of service related information	31
11.3.2 Mapping of cause information	32
11.4 Interworking PINX procedures for the preceding side	32
11.4.1 General aspects	32
11.4.2 Mapping of service related information	32
11.4.3 Mapping of cause information	32
11.5 Overlap sending	33
11.5.1 Preceding side procedures	33
11.5.2 Succeeding side procedures	33
11.6 Notification of interworking	34
11.7 Tones and announcements	34
11.7.1 Tones and announcements during call establishment	34
11.7.2 Clearing when tones and announcements are provided	34

<b>12. Call/connection handling requirements</b>	<b>34</b>
12.1 Transit PINX call/connection handling requirements	34
12.1.1 Receipt of SETUP message	35
12.1.2 Channel through connection procedures	35
12.1.3 State TCC_Incoming_Call_Proceeding	35
12.1.4 State TCC_Transit_Call_Proceeding	35
12.1.5 State TCC_Call_Alerting	36
12.1.6 State TCC_Call_Active	36
12.1.7 Clearing at a Transit PINX	36
12.1.8 Additional procedures for N-PISN interworking	37
12.1.9 Handling of basic call information elements at a Transit PINX	39
12.1.10 Notifications	41
12.2 Originating PINX call/connection handling requirements	41
12.2.1 Transmission of the SETUP message	41
12.2.2 Connection to the user plane virtual channel	42
12.2.3 Receipt of an ALERTING message	42
12.2.4 Receipt of a CONNECT message	42
12.2.5 Receipt of PROGRESS message	42
12.2.6 Notifications	42
12.2.7 Call/connection clearing initiated by the Originating PINX	42
12.2.8 Receipt of an indication of call/connection clearing	42
12.3 Terminating PINX call/connection handling requirements	43
12.3.1 Receipt of the SETUP message	43
12.3.2 Transmission of an ALERTING message	43
12.3.3 Transmission of a CONNECT message	43
12.3.4 Notifications	43
12.3.5 Call/connection clearing initiated by the Terminating PINX	43
12.3.6 Receipt of an indication of call/connection clearing	44
12.4 Incoming Gateway PINX call/connection handling requirements	44
12.4.1 Transmission of the SETUP message	44
12.4.2 Connection of the user plane virtual channel	44
12.4.3 Receipt of ALERTING imessage	45
12.4.4 Receipt of CONNECT message	45
12.4.5 Receipt of PROGRESS message	45
12.4.6 Notifications	45
12.4.7 Call/connection clearing initiated by the Gateway PINX	45
12.4.8 Receipt of an indication of call/connection clearing	45
12.5 Outgoing Gateway PINX call/connection handling requirements	45
12.5.1 Receipt of the SETUP message	45
12.5.2 Connection of the user plane virtual channel	46
12.5.3 Transmission of ALERTING message	46

12.5.4 Transmission of CONNECT message	46
12.5.5 Transmission of PROGRESS message	46
12.5.6 Notifications	46
12.5.7 Call/connection clearing initiated by the Gateway PINX	46
12.5.8 Receipt of an indication of call/connection clearing	47
12.6 Interworking PINX call/connection handling requirements for N-PISN -> B-PISN interworking	47
12.6.1 Transmission of the SETUP message	47
12.6.2 Connection of the user plane virtual channel	47
12.6.3 Receipt of progress indicators	47
12.6.4 Receipt of CONNECT message	47
12.6.5 Call/connection clearing initiated by the interworking PINX	47
12.7 Interworking PINX call/connection handling requirements for B-PISN -> N-PISN interworking	48
12.7.1 Receipt of the SETUP message	48
12.7.2 Transmission of progress indications	48
12.7.3 Transmission of CONNECT message	48
12.7.4 Call/connection clearing initiated by the Interworking PINX	48
<b>Annex A - Protocol Implementation Conformance Statement (PICS) proforma</b>	<b>50</b>
<b>Annex B - Soft permanent virtual connection procedures</b>	<b>72</b>
<b>Annex C - Mapping functions to support 64 kbit/s based circuit-mode PISN services in B-PISNs and interworking between N-PISNs and B-PISNs (QSIG/B-QSIG)</b>	<b>73</b>
<b>Annex D - Specification and Description Language (SDL) representation of protocol control procedures</b>	<b>78</b>
<b>Annex E - Guidelines for the use of instruction indicators</b>	<b>117</b>
<b>Annex F - Description of the capabilities supported by the protocol defined in this International Standard</b>	<b>119</b>
<b>Annex G - Specification and Description Language (SDL) representation of CCH at a Transit PINX and at an Interworking PINX</b>	<b>122</b>
<b>Annex H - Manufacturer specific information</b>	<b>135</b>
<b>Annex I - Possible strategies for avoidance of IPVCI collisions</b>	<b>136</b>
<b>Annex J - Differences between this International Standard and PNNI 1.0</b>	<b>137</b>
<b>Annex K - Specification and Description Language (SDL) representation of point-to-multipoint procedures</b>	<b>138</b>
<b>Annex L - Guidelines for interworking with ATM Forum PNNI 1.0</b>	<b>140</b>

**Foreword**

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 13247 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

Annexes A and B form an integral part of this International Standard. Annexes C to L are for information only.



**Introduction**

This International Standard is one of a series of International Standards defining services and signalling protocols applicable to Broadband Private Integrated Services Networks (B-PISNs). The series uses B-ISDN concepts as developed by ITU-T and conforms to the framework of International Standards for Open Systems Interconnection as defined by ISO/IEC.

This particular International Standard specifies the signalling protocol for use at the Q reference point for basic call/connection control (B-QSIG-BC).

# **Information technology — Telecommunications and information exchange between systems — Broadband Private Integrated Services Network — Inter-exchange signalling protocol — Basic call/connection control**

## **1 Scope**

This International Standard defines the signalling protocol for the purpose of basic call/connection control at the Q reference point between Private Integrated Services Network Exchanges (PINXs) connected together within a Broadband Private Integrated Services Network (B-PISN) employing Asynchronous Transfer Mode (ATM). This International Standard is part of the B-QSIG signalling system.

The Q reference point is defined in ISO/IEC 11579-1.

This International Standard is an application of the signalling protocol that forms part of the ATM Forum's PNNI 1.0 specification, which in turn is based on ITU-T Recommendation Q.2931, including the provisions for symmetrical operation described in annex H of recommendation Q.2931. Technical differences compared with the signalling protocol specified in PNNI 1.0 are summarized in annex J. Guidelines for interworking between a network employing the signalling protocol specified in this International Standard and a network employing the ATM Forum's PNNI 1.0 specification are given in annex L.

This International Standard is applicable to PINXs which interconnect to form a B-PISN using static hop-by-hop routing. It therefore complements the ATM Forum's PNNI 1.0 specification, which is applicable to networks that employ dynamic source routing.

The basic capabilities supported by the protocol specified in this International Standard are listed below and described in more detail in annex F:

- demand (switched) virtual channel and virtual path connections;
- point-to-point switched virtual channel and virtual path connections;
- point-to-multipoint virtual channel connections;
- connections with symmetric or asymmetric bandwidth requirements;
- single-connection (point-to-point) calls;
- basic signalling functions via protocol messages, information elements, and procedures;
- CBR, VBR (realtime and non-realtime), UBR and ABR service categories;
- negotiation of certain signalling parameters;
- inter-PINX virtual channel identifier (IPVCI) negotiation;
- out-of-band signalling for all signalling messages;
- error recovery;
- B-PISN addressing formats;
- end-to-end compatibility parameter identification;
- signalling interworking with N-PISN and provision of N-PISN services;
- forward compatibility;
- call/connection handling at different types of PINX, including Transit PINX, Originating PINX, Terminating PINX, Incoming Gateway PINX, Outgoing Gateway PINX and Interworking PINX;
- Signalling of individual QoS parameters
- ATM anycast addresses
- Negotiation of ATM traffic descriptors

- Soft PVPC and PVCC support
- Generic Identifier Transport

## 2 Conformance

In order to conform to this International Standard, a PINX shall satisfy the requirements identified in the Protocol Implementation Conformance Statement (PICS) proforma in annex A.

## 3 Normative references

### 3.1 References from ISO, IEC or ITU-T

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 8348:1996, *Information technology — Open Systems Interconnection — Network Service Definition*.

ISO/IEC 9646-1:1994, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 1: General concepts*.

ISO/IEC 9646-7:1995, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 7: Implementation Conformance Statements*.

ISO/IEC 11571:1994, *Information technology — Telecommunications and information exchange between systems — Numbering and sub-addressing in private integrated services networks*.

ISO/IEC 11572:1997, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Circuit mode bearer services — Inter-exchange signalling procedures and protocol*.

ISO/IEC 11574:1994, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Circuit-mode 64 kbit/s bearer services — Service description, functional capabilities and information flows*.

ISO/IEC 11584:1996, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Circuit-mode multi-rate bearer services — Service description, functional capabilities and information flows*.

ISO/IEC 11579-1:1994, *Information technology — Telecommunications and information exchange between systems — Private integrated services network — Part 1: Reference configuration for PISN exchanges (PINX)*.

ISO/IEC 13246:1997, *Information technology — Telecommunications and information exchange between systems — Broadband Private Integrated Services Network — Inter-exchange signalling protocol — Signalling ATM adaptation layer*.

CCITT Rec. E.164:1991, *Numbering plan for the ISDN era*.

CCITT Rec. I.112:1988, *Vocabulary of terms for ISDNs (Blue Book)*.

CCITT Rec. I.330:1988, *ISDN numbering and addressing principles (Blue Book)*.

CCITT Rec. Q.9:1988, *Vocabulary of switching and signalling terms (Blue Book)*.

CCITT Rec. Z.100:1988, *Specification and Description Language (Blue Book)*.

ITU-T Rec. I.321:1991, *B-ISDN protocol reference model and its application*.

ITU-T Rec. I.363:1996, *B-ISDN ATM adaptation layer (AAL) specification*.

ITU-T Rec. I.371:1996, *Traffic control and congestion control in B-ISDN*.

ITU-T Rec. I.610:1994, *B-ISDN operation and maintenance principles and functions*.

ITU-T Rec. Q.2931:1995, *Broadband Integrated Services Digital Network (B-ISDN) — Digital Subscriber Signalling System No. 2 (DSS2) — User-Network Interface (UNI) layer 3 specification for basic call/connection control*.

ITU-T Rec. Q.2971:1996, *Broadband Integrated Services Digital Network (B-ISDN) — Digital Subscriber Signalling System No. 2 (DSS2) — User-Network Interface (UNI) layer 3 specification for point-to-multipoint call/connection control*.

### **3.2 References from other sources**

All references in this subclause were correct at the time of approval of this International Standard. The provisions of the referenced specifications, as identified in this subclause, are valid within the context of this IS. The reference to a specification within this IS does not give it any further status within ISO/IEC; in particular, it does not give the referenced specification the status of an International Standard.

ATM Forum PNNI 1.0: 1996, *Private Network-Network Interface Specification Version 1.0 (af-pnni-0055.000)*.

ATM Forum UNI 4.0: 1996, *User-Network Interface (UNI) Signalling Specification Version 4.0 (af-sig-0061.000)*