
**Information technology —
Telecommunications and information
exchange between systems — Broadband
Private Integrated Services Network —
Inter-exchange signalling protocol —
Generic functional protocol**

iTeh STANDARD PREVIEW

*Technologies de l'information — Télécommunications et échange
d'information entre systèmes — Réseau à intégration de services privés à
large bande — Protocole de signalisation d'interéchange — Protocole
fonctionnel générique*

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

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Contents		Page
Foreword		vi
Introduction		vii
1	Scope	1
2	Conformance	1
3	Normative references	1
4	Terms and definitions	2
4.1	Gateway PINX	2
4.2	Inter-PINX link (IPL)	2
4.3	Preceding side	2
4.4	Private Integrated services Network eXchange (PINX)	2
4.5	Succeeding side	2
5	Abbreviations	2
6	Description	2
6.1	Overview	2
6.2	Addressing mechanisms	2
6.2.1	Explicit addressing	2
6.2.2	Functional addressing	3
6.3	Protocol architecture	3
6.4	Services provided by individual protocol entities	3
6.4.1	Services provided by ROSE	3
6.4.2	Services provided by GFT-control	3
6.4.3	Services provided by bearer-related transport	3
6.4.4	Services provided by connectionless bearer-independent transport	3
6.4.5	Services provided by connection-oriented bearer-independent transport	3
7	Operational requirements	3
8	Primitive definitions and state definitions	3
8.1	Primitive definitions	3
8.2	State definitions	3
8.2.1	APDU transport mechanisms	3
8.2.2	GFT-Control	3
9	Coding requirements	3
9.1	Message functional definitions and content	3
9.1.1	Additional messages for bearer-related transactions	4
9.1.2	Messages for connectionless bearer-independent transport	4
9.1.3	Messages for connection-oriented bearer-independent transport	4
9.2	General message format and information element coding	4
9.2.1	Message type	4

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ISO/IEC 19058:2001(E)

9.2.2	Other information elements	4
9.2.3	Encoding of information described using ASN.1	5
10	Signalling procedures	5
10.1	APDU transport mechanisms	5
10.1.1	Bearer-related transport	5
10.1.2	Bearer-independent transport mechanisms	6
10.1.3	Connection-oriented bearer-independent transport mechanism	6
10.1.4	Connectionless bearer-independent transport mechanism	7
10.2	GFT-Control procedures for APDUs	7
10.2.1	GFT-control procedures for transport of APDUs	7
10.2.2	GFT-Control procedures for CO-BI connection control	7
10.2.3	GFT-Control procedures for CL-BI mode	8
10.3	Remote operations procedures	8
10.3.1	Introduction	8
10.3.2	Procedures for operations	8
10.4	Notification transport mechanisms	8
10.4.1	Sending notification information	8
10.4.2	Receiving notification information	8
10.5	GFT-Control procedures for notifications	9
10.5.1	Actions at a PINX which generates notifications	9
10.5.2	Actions at a receiving PINX	9
11	Interworking with (narrowband) QSIG	9
11.1	Full termination of generic functional protocol	9
11.2	Generic interworking function	9
11.2.1	Architecture	9
11.2.2	Bearer-related transport mechanism	9
11.2.3	Connection-oriented bearer independent transport mechanism	9
11.2.4	Connectionless bearer independent transport mechanism	9
12	Parameter values	9
12.1	Connection-oriented bearer-independent transport	9
13	Dynamic description (SDLs)	9
13.1	Block overview diagram	9
13.2	Component transport mechanisms	9
13.2.1	Bearer-related transport mechanism	9
13.2.2	Connection-oriented bearer-independent transport mechanism	9
13.2.3	Connectionless bearer-independent transport mechanism	10
13.3	GFT-Control	10
14	Manufacturer Specific Information (MSI)	16
14.1	Manufacturer specific operations and errors	16
14.2	Manufacturer specific additions to standardised operations and error	16
14.3	Manufacturer specific notifications	16
Annexes		
A	Protocol Implementation Conformance Statement (PICS) proforma	17
B	Formal definition of data types using ITU-T Rec. X.208	18
C	Formal definition of data types using ITU-T Rec. X.680	20
D	Information flows	22

E - Instruction indicators	23
F - Formal definitions of remote operations notation using ITU-T Rec. X.208	24
G - Formal definitions of remote operations notation using ITU-T Rec. X.680	25
H - Examples of the use of Manufacturer Specific Information	26
I - Remote operations protocol	27
J - Problem code definitions	28

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 19058 was prepared by ECMA (as ECMA-254) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

Annexes A, B and C form a normative part of this International Standard. Annexes D to J are for information only.

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Introduction

This International Standard is one of a series of standards defining services and signalling protocols applicable to Broadband Private Integrated Services Networks. The series uses the B-ISDN concepts as developed by ITU-T (formerly CCITT) and is also within the framework of International Standards for open systems interconnection as defined by ISO.

This International Standard is based upon ATM Forum's specification AF-CS-0102.000 with modification indicated in the text of this International Standard.

This International Standard specifies the signalling protocol for use at the Q reference point in support of the Generic Functional Protocol.

The International Standard is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO/IEC JTC 1, ITU-T, ETSI and other international and national standardisation bodies. It represents a pragmatic and widely based consensus.

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Information technology — Telecommunications and information exchange between systems — Broadband Private Integrated Services Network — Inter-exchange signalling protocol — Generic functional protocol

1 Scope

This International Standard specifies the functional protocol for the support of supplementary services and additional basic call capabilities at the Q-reference point. The Q-reference point exists between Private Integrated services Network eXchanges (PINX) connected together within a Private Integrated Services Network (PISN) and is defined in ISO/IEC 11579-1. The generic functional protocol is part of the B-QSIG signalling system.

The procedures specified in this International Standard can be used in association with a bearer connection (bearer-related) or outside the context of any bearer connection (bearer-independent). The application of this International Standard to individual additional basic call capabilities and supplementary services is outside the scope of this International Standard and should be defined in those standards or proprietary specifications that specify the individual capabilities.

All conformance to this International Standard is based on the external behaviour at the interface at the Q-reference point, i.e. on the generation of the correct message structure and in the proper sequence as specified in this International Standard.

The generic functional protocol is based on ATM Forum specification AF-CS-0102.000, which itself is based on the DSS2 generic functional protocol specified in ITU-T Rec. Q.2932.1 but extended to allow non-local information exchange as well as local information exchange.

This International Standard is applicable to PINXs supporting additional basic call capabilities and/or supplementary services requiring the functional protocol for signalling at the Q-reference point.

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 section 30 of AF-CS-0102.000.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

AF-CS-0102.000, *PNNI Addendum on PNNI/B-QSIG Interworking and Generic Functional Protocol for the Support of Supplementary Services.*

References contained in section 26.2 of AF-CS-0102.000 shall apply with the following additions:

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.*

ISO/IEC 13247:1997, *Information technology - Telecommunications and information exchange between systems - Broadband Private Integrated Services Network - Inter-exchange signalling protocol - Basic call/connection control.*

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).*

4 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in section 26.3 of AF-CS-0102.000 and the following apply.

4.1 Gateway PINX : The definition in ISO/IEC 13247 shall apply. Dependent on the capabilities of the signalling system being interworked by the gateway PINX, it can act as a Transit or an End PINX in the context of the supplementary services APDUs. That is, it can either transport the APDUs unchanged to or from the other signalling system, perhaps embedded in some other protocol unit, or process the APDUs and perform an interworking function of the information flows and encoding of the Supplementary service concerned.

4.2 Inter-PINX link (IPL) : The definition in ISO/IEC 13247 shall apply.

4.3 Preceding side : In the context of a call/connection or a CO-BI connection using an IPL, the side that initiates call/connection or CO-BI connection establishment over that IPL (see figure 1 in ISO/IEC 13247).

4.4 Private Integrated services Network eXchange (PINX) : As specified in ISO/IEC 11579-1.

4.5 Succeeding side : In the context of a call/connection or a CO-BI connection using an IPL, the opposite side from the side that initiates call/connection or CO-BI connection establishment over that IPL (see figure 1 in ISO/IEC 13247).

NOTE - The term 'node' in AF-CS-0102.000 is equal to the term 'PINX'.

The term 'PNNI' in AF-CS-0102.000 is equal to the term 'B-QSIG'.

5 Abbreviations

Abbreviations contained in section 26.4 of AF-CS-0102.000 shall apply with the following additions:

APDU	Application Protocol Data Unit
CL-BI	Connectionless Bearer Independent
CO-BI	Connection Oriented Bearer Independent
IPL	Inter-PINX Link
IPVCI	Inter-PINX Virtual Channel Identifier ISO/IEC 19058:2001
IPVPI	Inter-PINX Virtual Path Identifier https://standards.iteh.ai/catalog/standards/sist/4239f060-a151-4b91-9ecc-3084c9be35b/iso-iec-19058-2001
PISN	Private Integrated Services Network
PINX	Private Integrated services Network eXchange
ROSE	Remote Operation Service Element
VCI	Virtual Channel Identifier
VPI	Virtual Path Identifier

6 Description

6.1 Overview

The generic functional protocol provides a means of exchanging ROSE APDUs on behalf of Application Service Control entities located in different PINXs. These Application Service Control entities may be for the support of supplementary services or additional basic call capabilities. This exchange may take place either in association with a bearer established using the procedures of ISO/IEC 13247 or independently of any bearer. Bearer independent transport can either be connection-oriented or connectionless. In the case of connection-oriented bearer-independent transport, establishment and release of the connection is specified in this International Standard.

For bearer-related transport and connection-oriented bearer-independent transport, the exchange of ROSE APDUs can be between any of two PINXs involved in the connection, as determined by addressing information transported with the APDUs (e.g., between the two End PINXs). For connectionless bearer independent transport, the exchange of ROSE APDUs is between the source PINX and the destination PINX for the transporting message.

6.2 Addressing mechanisms

Addressing mechanisms described in section 26.5.2 of AF-CS-0102.000 shall apply.

6.2.1 Explicit addressing

Explicit addressing described in section 26.5.2.1 of AF-CS-0102.000 shall apply.

6.2.2 Functional addressing

Functional addressing described in section 26.5.2.2 of AF-CS-0102.000 shall apply.

6.3 Protocol architecture

Protocol Architecture described in section 26.5.3 of AF-CS-0102.000 shall apply with following modification:

— Replace all references to PNNI, ITU-T Rec. Q.2931 and Q.2971 with references to ISO/IEC 13247.

6.4 Services provided by individual protocol entities

6.4.1 Services provided by ROSE

Services provided by ROSE described in section 26.5.4.1 of AF-CS-0102.000 shall apply.

6.4.2 Services provided by GFT-control

Services provided by GFT-control described in section 26.5.4.2 of AF-CS-0102.000 shall apply.

6.4.3 Services provided by bearer-related transport

Services provided by bearer-related transport described in section 26.5.4.3 of AF-CS-0102.000 shall apply with following modification:

— Replace all references to PNNI, ITU-T Rec. Q.2931 and Q.2971 with references to ISO/IEC 13247.

6.4.4 Services provided by connectionless bearer-independent transport

Services provided by connectionless bearer-independent transport described in section 26.5.4.4 of AF-CS-0102.000 shall apply.

6.4.5 Services provided by connection-oriented bearer-independent transport

Services provided by connection-oriented bearer-independent transport described in section 26.5.4.5 of AF-CS-0102.000 shall apply.

7 Operational requirements

Operational requirements described in section 26.6 of AF-CS-0102.000 shall apply.

8 Primitive definitions and state definitions

8.1 Primitive definitions

Primitive definitions described in section 26.7.1 of AF-CS-0102.000 shall apply with following modification:

— Replace all references to PNNI, ITU-T Rec. Q.2931 and Q.2971 with references to ISO/IEC 13247.

8.2 State definitions

8.2.1 APDU transport mechanisms

8.2.1.1 Bearer-related transport mechanism

There are no additional call/connection states over and above those defined in ISO/IEC 13247 clause 6.4.

8.2.1.2 Connectionless bearer-independent transport mechanism

Connectionless bearer-independent transport states described in section 26.7.2.1.2 of AF-CS-0102.000 shall apply.

8.2.1.3 Connection-oriented bearer-independent transport mechanism

Connection-oriented bearer-independent transport states described in section 26.7.2.1.3 of AF-CS-0102.000 shall apply.

8.2.2 GFT-Control

The GFT-control state described in section 26.7.2.2 of AF-CS-0102.000 shall apply.

9 Coding requirements

9.1 Message functional definitions and content

This subclause shall be read in conjunction with clause 7 of ISO/IEC 13247. All messages are additional to those defined in that clause and the following tables should be interpreted according to the introductory material of clause 7 of ISO/IEC 13247.

To determine if an information element specified in this International Standard is allowed to be included in the following messages, see subclause 9.2.

Information elements not defined in subclause 9.2 are only allowed to be included in the following messages when explicitly indicated in the message structure.

9.1.1 Additional messages for bearer-related transactions

Additional messages for bearer-related transactions described in section 26.8.1.1 of AF-CS-0102.000 shall apply.

9.1.1.1 FACILITY

FACILITY message described in section 26.8.1.1.1 of AF-CS-0102.000 shall apply.

9.1.2 Messages for connectionless bearer-independent transport

9.1.2.1 FACILITY

FACILITY message described in section 26.8.1.2.1 of AF-CS-0102.000 shall apply with the following modification:

- Broadband repeat indicator is not applicable.
- Designated transit list is not applicable.
- Connection scope selection is not applicable.

9.1.3 Messages for connection-oriented bearer-independent transport

9.1.3.1 CALL PROCEEDING

CALL PROCEEDING message described in section 26.8.1.3.1 of AF-CS-0102.000 shall apply.

9.1.3.2 CO-BI SETUP

CO-BI SETUP message described in section 26.8.1.3.2 of AF-CS-0102.000 shall apply with the following modification:

- Broadband repeat indicator is not applicable.
- Designated transit list is not applicable.
- Connection scope selection is not applicable.

9.1.3.3 CONNECT

CONNECT message described in section 26.8.1.3.3 of AF-CS-0102.000 shall apply.

9.1.3.4 FACILITY

FACILITY message described in section 26.8.1.3.4 of AF-CS-0102.000 shall apply.

9.1.3.5 NOTIFY

NOTIFY message described in section 26.8.1.3.5 of AF-CS-0102.000 shall apply.

9.1.3.6 RELEASE

RELEASE message described in section 26.8.1.3.6 of AF-CS-0102.000 shall apply with the following modification:

- Crankback is not applicable.

9.1.3.7 RELEASE COMPLETE

RELEASE COMPLETE message described in section 26.8.1.3.7 of AF-CS-0102.000 shall apply with the following modification:

- Crankback is not applicable.

9.1.3.8 STATUS

STATUS message described in section 26.8.1.3.8 of AF-CS-0102.000 shall apply.

9.1.3.9 STATUS ENQUIRY

STATUS ENQUIRY message described in section 26.8.1.3.9 of AF-CS-0102.000 shall apply.

9.2 General message format and information element coding

Section 26.8.2 of AF-CS-0102.000 shall apply.

9.2.1 Message type

Message type described in section 26.8.2.1 of AF-CS-0102.000 shall apply.

9.2.2 Other information elements

Other information elements described in section 26.8.2.2 of AF-CS-0102.000 shall apply.

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