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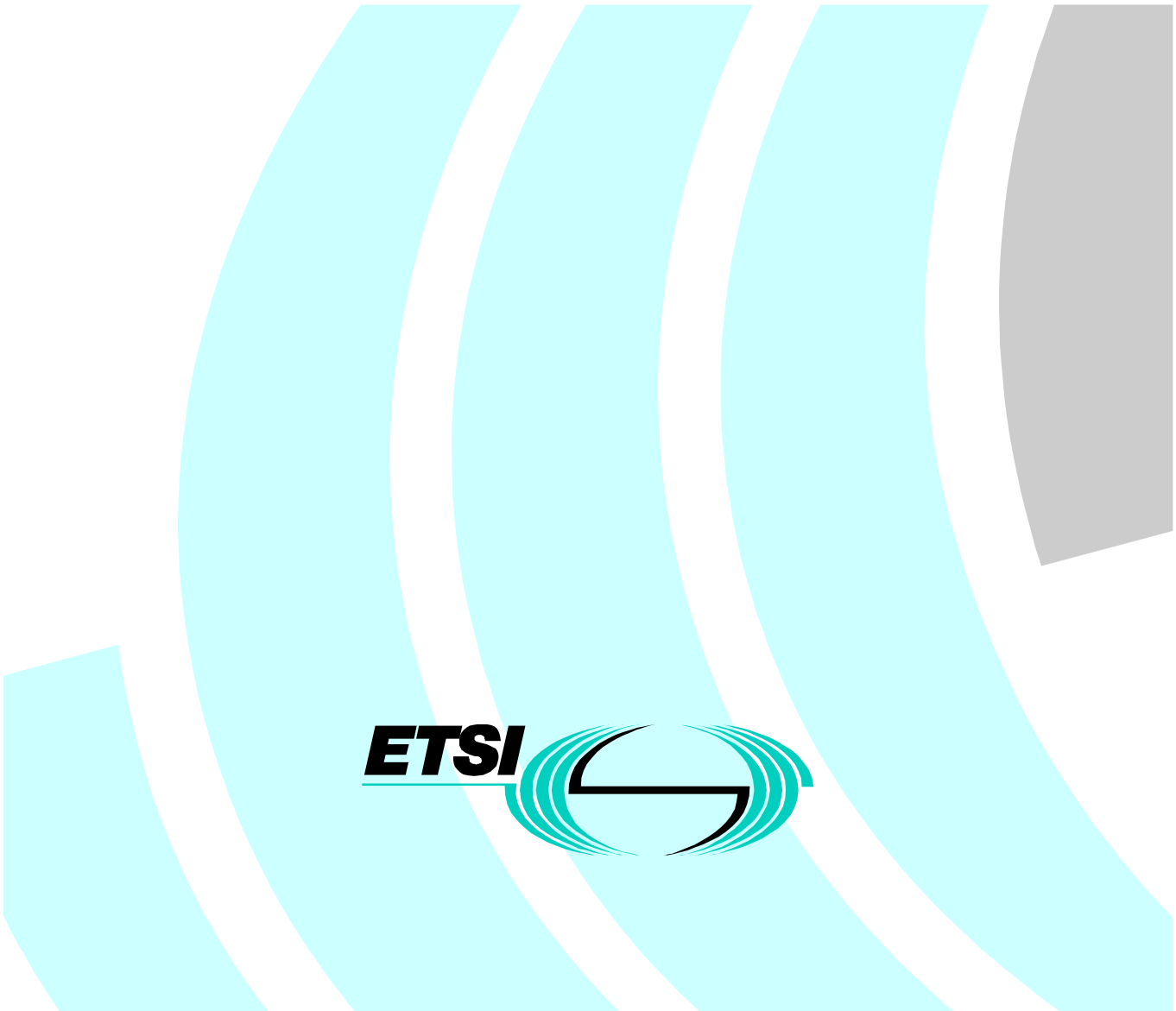
European Standard (Telecommunications series)

V interfaces at the digital Service Node (SN); Interfaces at the VB5.2 reference point for the support of broadband or combined narrowband and broadband Access Networks (ANs); Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification



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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS), and is now submitted for the Voting phase of the ETSI standards Two-step Approval Procedure.

The present document is part 2 of a multi-part EN covering V interfaces at the digital Service Node (SN); Interfaces at the VB5.2 reference point for the support of broadband or combined narrowband and broadband Access Networks (ANs), as identified below:

Part 1: "Interface specification";

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

Part 3: "Test Suite Structure and Test Purposes (TSS&TP)";

Part 4: "Abstract Test Suites (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT)".

Proposed national transposition dates	
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Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the V interfaces at the digital Service Node (SN) Interfaces at VB5.2 reference point for the support of broadband or combined narrowband and broadband Access Networks defined in EN 301 217-1 [4] in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [6] and ETS 300 406 [2].

It details in tabular form the implementation options, i.e. the optional functions additional to those which are mandatory to implement.

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, the latest version applies.
- 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] ETS 300 404 (1997): "Broadband Integrated Services Digital Network (B-ISDN); B-ISDN Operation And Maintenance (OAM) principles and functions".

[2] ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[3] EN 301 005-1 (V1.1): "V interfaces at the digital Service Node (SN); Interface at the VB5.1 reference point for the support of broadband or combined narrowband and broadband Access Network (AN); Part 1: Interface specification".

[4] EN 301 217-1 (V1.1): "V interfaces at the digital Service Node (SN); Interfaces at the VB5.2 reference point for the support of broadband or combined narrowband and broadband Access Networks (ANs); Part 1: Interface specification".

[5] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework -; Part 1: General concepts".

[6] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection -; Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[7] ITU-T Recommendation G.703: "Physical/electrical characteristics of hierarchical digital interfaces".

[8] ITU-T Recommendation G.957: "Optical interfaces for equipments and systems relating to the synchronous digital hierarchy".

[9] ITU-T Recommendation I.356 (10/96): "B-ISDN ATM layer cell transfer performance".

[10] ITU-T Recommendation I.371 (08/96): "Traffic control and congestion control in B-ISDN".

[11] ITU-T Recommendation I.610 (11/95): "B-ISDN Operation and maintenance principles and functions abstracts".

[12] ITU-T Recommendation I.732 (03/96): "Functional characteristics of ATM equipment".

[13] ITU-T Recommendation Q.967-1: "V-interfaces at the service node (SN): VB5.1 reference point specification".

[14] ITU-T Recommendation Q.2931 (02/95): "Broadband Integrated Services Digital Network (B-ISDN); Digital subscriber signalling system no. 2 (DSS 2) - User-network Interface (UNI); Layer 3 specification for basic call/connection control".

[15] ITU-T Recommendation Q.2961.1 (10/95): "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. 2 (DSS2); Additional traffic parameters: Additional signalling capabilities to support traffic parameters for the tagging option and the sustainable cell rate parameter set".

[16] ITU-T Recommendation Q.2961.2 (06/97): "Digital Subscriber Signalling System No. 2 (DSS 2) - Additional traffic parameters: Support of ATM Transfer capability in the broadband bearer capability information element.

[17] ITU-T Recommendation Q.2961.3 (09/97): "Digital Subscriber Signalling System No. 2 (DSS 2) - Additional traffic parameters: Signalling capabilities to support traffic parameters for the available bit rate (ABR) ATM transfer capability".

[18] ITU-T Recommendation Q.2961.4 (09/97): "Digital Subscriber Signalling System No. 2 (DSS 2) - Additional traffic parameters: Signalling capabilities to support traffic parameters for the ATM Block Transfer (ABT) ATM transfer capability".

[19] ITU-T Recommendation Q.2961.5: "DSS2 cell delay variation tolerance indication".

NOTE 1: Not yet published.

[20] ITU-T Recommendation Q.2961.6: "Digital Subscriber Signalling System No. 2 (DSS 2) - Additional traffic parameters: Additional signalling procedures for the support of the SBR2 and SBR3 ATM transfer capabilities".

NOTE 2: Not yet published.

[21] ITU-T Recommendation Q.2962 (05/98): "Digital Subscriber Signalling System No. 2 - Connection characteristics negotiation during call/connection establishment phase".

[22] The ATM Forum af-tm-0056.000: "Traffic Management Specification 4.0".

3 Definitions and abbreviations

3.1 Definitions

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

- terms defined in EN 301 217-1 [4] and EN 301 005-1 [3];
- terms defined in ISO/IEC 9646-1 [5] and in ISO/IEC 9646-7 [6].

In particular, the following terms defined in ISO/IEC 9646-1 [5] apply:

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc

ICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS

Protocol ICS (PICS): ICS for an implementation or system claimed to conform to a given protocol specification

Static conformance review: review of the extent to which the static conformance requirements are met by the Implementation Under Test (IUT), accomplished by comparing the PICS with the static conformance requirements expressed in the relevant standard(s) (see ISO/IEC 9646-1 [5])

3.2 Abbreviations

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

AAL1	ATM Adaptation Layer type 1
AAL5	ATM Adaptation Layer type 5
ABR	Available Bit Rate
ABT	ATM Block Transfer
AIS	Alarm Indication Signal
AN	Access Network
ATC	ATM Transfer Capability
ATM	Asynchronous Transfer Mode
B-AN	Broadband Access Network
B-BCC	Broadband Bearer Connection Control
B-ISDN	Broadband Integrated Services Digital Network
B-UNI	Broadband User Network Interface
CDVT	Cell Delay Variation Tolerance
DBR	Deterministic Bit Rate
DT	Delayed Transmission
EFCI	Explicit Forward Congestion Indication
GFC	Generic Flow Control
ICS	Implementation Conformance Statement
ID	Identification
IUT	Implementation Under Test
LSP	Logical Service Port
NNI	Network-to-Network Interface
NPC	Network Parameter Control
OAM	Operations Administration and Maintenance
PDH	Plesiochronous Digital Hierarchy
PICS	Protocol Implementation Conformance Statement
ptm	point to multipoint
ptp	point to point
QoS	Quality of Service
RDI	Remote Defect Indication
RTMC	Real Time Management Co-ordination (protocol)
SBR	Statistical Bit Rate
SCS	System Conformance Statement
SDH	Synchronous Digital Hierarchy
SN	Service Node
SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
STM	Synchronous Transport Module
SUT	System Under Test
TC	Termination Convergence
UNI	User Network Interface
UPC	Usage Parameter Control
VC	Virtual Channel
VCCT	Virtual Channel Connection Termination
VCE	Virtual Channel Entity
VCI	Virtual Channel Identifier
VCME	Virtual Channel Multiplex Entity
VP	Virtual Path
VPC	Virtual Path Connection
VPCI	Virtual Path Connection Identifier
VPCT	Virtual Path Connection Termination
VPE	Virtual Path Entity
VPI	Virtual Path Identifier
VPME	Virtual Path Multiplex Entity

4 Conformance to this PICS proforma specification

If it claims to conform to the present document the actual PICS proforma to be filled in by a supplier shall be technically equivalent to the text of the PICS proforma given in annex A, and shall preserve the numbering/naming and ordering of the proforma items.

An PICS which conforms to the present document shall be a conforming PICS proforma completed in accordance with the guidance for completion given in clause A.1.

Annex A (normative): Protocol ICS proforma for EN 301 217-1

A.1 Guidance for completing the PICS proforma

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in EN 301 217-1 [4] may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into subclauses for the following categories of information:

- guidance for completing the PICS proforma;
- identification of the implementation;
- identification of the protocol;
- global statement of conformance.

A.1.2 Abbreviations and conventions

The PICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [6].

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

Status column

The following notations, defined in ISO/IEC 9646-7 [6], are used for the status column:

m	mandatory - the capability is required to be supported.
o	optional - the capability may be supported or not.
n/a	not applicable - in the given context, it is impossible to use the capability.
x	prohibited (excluded) - there is a requirement not to use this capability in the given context.
o.i	qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table.
ci	conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table.

Reference column

The reference column makes reference to EN 301 217-1 [4] and EN 301 005-1 [3], except where explicitly stated otherwise.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [6], are used for the support column:

Y or y	supported by the implementation
N or n	not supported by the implementation
N/A, n/a or -	no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status)

If this PICS proforma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (e.g. ?3). This expression shall be given in the space for comments provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE 1: ?3: IF prof1 THEN Y ELSE N

It is also possible to provide a comment to an answer in the space provided at the bottom of the table.

NOTE: As stated in ISO/IEC 9646-7 [6], support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 2: A.5/4 is the reference to the answer of item 4 in table 5 of annex A.

EXAMPLE 3: A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>;

EXAMPLE 4: 5 .. 20.

- list of values: <value1>, <value2>, ..., <valueN>;

EXAMPLE 5: 2 ,4 ,6 ,8, 9.

EXAMPLE 6: '1101'B, '1011'B, '1111'B.

EXAMPLE 7: '0A'H, '34'H, '2F'H.

- list of named values: <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>;

EXAMPLE 8: reject(1), accept(2).

- length: size (<min size> .. <max size>);

EXAMPLE 9: size (1 .. 8).

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

Prerequisite line

A prerequisite line takes the form: Prerequisite: <predicate>.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

A.1.3 Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in subclause A.1.2.

However, the tables containing in "AN role" subclause shall only be completed for user implementations, and the tables containing in "SN role" subclause shall only be completed for network implementations.

If necessary, the supplier may provide additional comments in space at the bottom of the tables, or separately on sheets of paper.

More detailed instructions are given at the beginning of the different subclauses of the PICS proforma.

A.2 Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

A.2.1 Date of the statement

.....

A.2.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version:

.....

A.2.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

.....

.....

.....

Operating system:

.....

A.2.4 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.5 Client (if different from product supplier)

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.6 PICS contact person

(A person to contact if there are any queries concerning the content of the PICS)

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.3 Identification of the protocol

This PICS proforma applies to the following standard:

EN 301 217-1 (V1.1): "V interfaces at the digital Service Node (SN); Interfaces at the VB5.2 reference point for the support of broadband or combined narrowband and broadband Access Networks (ANs); Part 1: Interface specification".

A.4 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No) .....

NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS proforma.

A.5 Service Node

In the tables below only those functions have been specified as "mandatory" which have to be supported in order to ensure the proper operation of the VB5.2 interface. Functions marked as optional are not required by the VB5.2 interface itself but may be required by an AN- or SN-specification.

Subclauses shown in the "Reference" column of all following tables refer to EN 301 217-1 [4] if marked by [4] or to EN 301 005-1 [3] if marked by [3].

A.5.1 Main features

A.5.1.1 General

Table A.1: Main features

Item	Feature	Reference	Status	Support
1	RTMC function	11.1 [3]	m	
2	B-BCC function	11.2 [4]	m	

Table A.2: Service types

Item	Type	Reference	Status	Support
1	B-ISDN services	7.1 [4]	o.201	
2	Non B-ISDN ATM based services	8.2 [4]	o.201	
3	narrowband services via V5.1	8.3.2 [3]	o.201	
4	narrowband services via V5.2	8.3.2 [3]	o.201	
5	narrowband services via V3	8.3.2 [3]	o.201	
6	other non ATM based services	8.3.2 [3]	o.201	

o.201: It is mandatory to support at least one of these items.

A.5.1.2 ATM layer characteristics

A.5.1.2.1 Broadband access network connection types

Table A.3: B-AN connection types

Item	Connection type	Reference	Status	Support
1	Type A VP- ptp connections	7.5.1.1 [3]	o	
2	Type A VC- ptp connections	7.5.1.1 [3]	o	
3	Type A VP- ptm connections	7.5.1.2 [3]	o	
4	Type A VC- ptm connections	7.5.1.2 [3]	o	
5	Type B VP- ptp connections (note)	7.5.2 [3]	m	
6	Type B VC- ptp connections (note)	7.5.2 [3]	m	
7	Type C VC- ptp connections	7.5.3.1 [4]	o	
8	Type C VC- ptm connections	7.5.3.1 [4]	o	
9	Type D VP- ptp connections	7.6.1 [3]	o	
10	Type D VC- ptp connections	7.6.1 [3]	o	
11	Type D VP- ptm connections	7.6.2 [3]	o	
12	Type D VC- ptm connections	7.6.2 [3]	o	
13	Type E VC- ptp connections	7.6.2 [3]	o	
14	Type E VC- ptm connections	7.6.2 [3]	o	
NOTE: Mandatory because of RTMC and B-BCC channel.				

A.5.1.2.2 ATM transfer characteristics

Table A. 4: ATM transfer characteristics

Item	Characteristics	Reference (subclause)	Status	Support
1	VP link interconnection function	9.7 [3]	c.401	
2	VC link interconnection function	9.7 [3]	c.402	
3	ATM transfer capabilities at the VP level (note 1)	5.1 [3]	m	
4	QoS classes at the VP level (note 2)	12.1 [3]	m	
5	Association of ATCs with QoS classes at the VP level (note 5)	5.1, 6.3, 12.1 [3]	m	
6	ATM transfer capabilities at the VC level (note 3)	5.1 [3]	m	
7	QoS classes at the VC level (note 4)	12.1 [3]	m	
8	Association of ATCs with QoS classes at the VC level (note 5)	5.1, 6.3, 12.1 [3]	m	
NOTE 1: The support of ATM transfer capabilities is specified in annex C, table C.1-1. NOTE 2: The support of QoS classes is specified in annex C, table C.2-1. NOTE 3: The support of ATM transfer capabilities is specified in annex C, table C.1-2. NOTE 4: The support of QoS classes is specified in annex C, table C.2-2. NOTE 5: The association of QoS classes with ATM transfer capabilities is specified in ITU-T Recommendation I.356 [9].				

c.401: IF A.3/1 OR A.3/3 OR A.3/7 OR A.3/9 OR A.3/11 OR A.3/13 THEN m ELSE n/a.

c.402: IF A.3/2 OR A.3/4 OR A.3/8 OR A.3/10 OR A.3/12 OR A.3/14 THEN m ELSE n/a.

A.5.2 VB5.2 reference point

A.5.2.1 Basic characteristics

Table A.5: Basic characteristics of the VB5.2 interface

Item	Characteristic	Reference	Status	Support
1	one VB5.2 reference point via one TC function	6.2.2 [3]	o	
2	one VB5.2 reference point via multiple TC functions	6.2.2 [3]	o	
3	different VB5.2 reference points via common TC function(s)	6.2.2 [3]	o	

A.5.2.1.1 Support of a physical interface

Table A.6: Physical interface at the VB5.2 reference point

Item	Characteristic	Reference	Status	Support
1	physical interface(s) at the VB5.2 reference point	6.2.1 [3]	o	
2	a transmission path identification method	6.2.4.5 [3]	c.601	

c.601: IF A.6/1 THEN m ELSE n/a.

A.5.2.1.2 Physical layer at the VB5.1 reference point

Table A.7: Physical layer at the VB5.1 reference point

Item	Physical layer options	Reference	Status	Support
1	PDH/Electrical (G.703 [7])/E3	Annex F [3]	c.701	
2	SDH/Electrical (G.703 [7])/STM1	Annex F [3]	c.701	
3	SDH/Optical (G.957 [8] intra-office)/STM1	Annex F [3]	c.701	
4	SDH/Optical (G.957 [8] intra-office)/STM4	Annex F [3]	c.701	
5	SDH/Optical (G.957 [8] short haul)/STM1	Annex F [3]	c.701	
6	SDH/Optical (G.957 [8] short haul)/STM4	Annex F [3]	c.701	
7	other (note)		c.701	
NOTE: Other physical layer options can be added if required.				

c.701: IF A.6/1 THEN it is mandatory to support at least one of these items.

A.5.2.2 ATM layer functions

Table A.8: ATM layer at the VB5.1 reference point

Item	ATM layer characteristics	Reference (subclause)	Status	Support
1	cell header format according to NNI specification	6.3.1 [3]	m	
2	provision of VPI and VCI values for the RTMC channel and the B-BCC channel	6.3.1 [3]	m	
3	Selective cell discard at VPME level	9.9.2 [3]	o	
4	VP NPC	9.9.2 [3]	o	
5	VP traffic shaping	9.9.2 [3]	o	
6	VP resource management cells	9.9.2 [3]	o	
7	EFCI setting at VPE	9.9.2 [3]	o	
8	F4 OAM cells insertion/extraction at VPE level (note 1)	9.9.2 [3]	m	
9	F4 OAM non-intrusive monitoring at VPE level (note 1)	9.9.2 [3]	m	
10	F4 OAM cells insertion/extraction at VPCT level (note 1)	9.9.2 [3]	m	
11	Selective cell discard at VCME level	9.9.2 [3]	o	
12	VC UPC	9.9.2 [3]	c.801	
13	VC NPC	9.9.2 [3]	o	
14	VC traffic shaping	9.9.2 [3]	o	
15	VC resource management cells	9.9.2 [3]	o	
16	EFCI setting at VCE	9.9.2 [3]	o	
17	F5 OAM cells insertion/extraction at VCE level(note 2)	9.9.2 [3]	m	
18	F5 OAM non-intrusive monitoring at VCE level (note 2)	9.9.2 [3]	m	
19	F5 OAM cells insertion/extraction at VCCT level (note 2)	9.9.2 [3]	m	
NOTE 1: The status for the individual sub-functions is specified in annex B, table B.1-1. NOTE 2: The status for the individual sub-functions is specified in annex B, table B.1-2.				

c.801: IF A.3/1 OR A.3/3 OR A.3/7 OR A.3/9 OR A.3/11 OR A.3/13 THEN m ELSE n/a.

A.5.2.3 ATM adaptation layer

A.5.2.3.1 AAL for the RTMC protocol

Table A.9: AAL functions for the RTMC protocol

Item	Are the AAL functions for the RTMC protocol compliant with	Reference	Status	Support
1	AAL5 specification	6.4.5 [3]	m	
2	SSCOP specification	6.4.5 [3]	m	
3	SSCF specification	6.4.5 [3]	m	

A.5.2.3.2 AAL for the B-BCC protocol

Table A.10: AAL functions for the B-BCC protocol

Item	Are the AAL functions for the B-BCC protocol compliant with	Reference	Status	Support
1	AAL5 specification	6.4.6 [4]	m	
2	SSCOP specification	6.4.6 [4]	m	
3	SSCF specification	6.4.6 [4]	m	

A.5.2.3.3 AAL for circuit emulation of 2 048 kbit/s signals

Table A.11: AAL functions for circuit emulation of 2 048 kbit/s signals

Item	AAL type	Reference	Status	Support
1	AAL1 for circuit emulation of 2 048 kbit/s signals	8.3.2.2 [3]	c.1101	

c.1101: IF A.2/3 OR A.2/4 OR A.2/5 THEN m ELSE o.

A.5.2.4 RTMC function and protocol

A.5.2.4.1 RTMC main features

Table A.12: RTMC procedures

Item	RTMC main features	Reference (clause)	Status	Support
1	General error handling procedures	13.3.1.5 [3]	m	
2	Block and Unblock procedures	13.3.2.1 [3]	m	
3	Shutting down of resources	13.3.2.2 [3]	m	
4	VPCI consistency check procedures	13.3.3 [3]	o	
5	RTMC Start-up procedure	13.3.4.1 [3]	m	
6	Verify LSP ID procedure	13.3.4.2 [3]	m	
7	Reset complete LSP procedure	13.3.4.3 [3]	m	
8	Reset VPC procedure	13.3.4.4 [3]	o	
9	Compatibility instruction procedure	13.6.1.5.2 [3]	m	

A.5.2.4.2 RTMC messages

The tables in this subclause ask questions related to the supported RTMC messages in the service node role.

A.5.2.4.2.1 RTMC messages received by the Service Node

Indicating support for an item in table A.13 states that the implementation has the ability to recognize the messages listed in that item. Support for the receipt of a particular type of RTMC message means support for recognizing and acting upon all valid instances of that message type, including all valid message parameters, to the extent required by EN 301 005-1 [3].

Table A.13: RTMC messages received by the Service node

Item	message	Reference (clause)	Status	Support
1	BLOCK_RSC	14.2.1.2.1 [3]	m	
2	AWAIT_CLEAR	14.2.1.2.3 [3]	m	
3	AWAIT_CLEAR_COMP_ACK	14.2.1.2.6 [3]	m	
4	UNBLOCK_RSC	14.2.1.2.7 [3]	m	
5	CONS_CHECK_REQ_ACK	14.2.1.3.2 [3]	c.1301	
6	CONS_CHECK_END_ACK	14.2.1.3.4 [3]	c.1301	
7	LSPID	14.2.1.4.1 [3]	m	
8	REQ_LSPID	14.2.1.4.2 [3]	m	
9	RESET_RSC	14.2.1.4.3 [3]	m	
10	RESET_RSC_ACK	14.2.1.4.4 [3]	m	
11	PROTOCOL_ERROR	14.2.1.4.5 [3]	m	

c.1301: IF A.12/4 THEN m ELSE n/a.

A.5.2.4.2.2 RTMC messages transmitted by the Service Node

Indicating support for an item in table A.14 states that the implementation has the ability to transmit the message listed in that item.

Table A.14: RTMC messages transmitted by the Service Node

Item	message	Reference (clause)	Status	Support
1	BLOCK_RSC_ACK	14.2.1.2.2 [3]	m	
2	AWAIT_CLEAR_ACK	14.2.1.2.4 [3]	m	
3	AWAIT_CLEAR_COMP	14.2.1.2.5 [3]	m	
4	UNBLOCK_RSC_ACK	14.2.1.2.8 [3]	m	
5	CONS_CHECK_REQ	14.2.1.3.1 [3]	c.1401	
6	CONS_CHECK_END	14.2.1.3.3 [3]	c.1401	
7	LSPID	14.2.1.4.1 [3]	m	
8	REQ_LSPID	14.2.1.4.2 [3]	m	
9	RESET_RSC	14.2.1.4.3 [3]	m	
10	RESET_RSC_ACK	14.2.1.4.4 [3]	m	
11	PROTOCOL_ERROR	14.2.1.4.5 [3]	m	

c.1401: IF A.12/4 THEN m ELSE n/a.

A.5.2.4.3 Timers used in RTMC procedures

Table A.15: Timers used in RTMC procedures

Item	Timer	Reference	Status	Support	Value		Tolerance	
					default	supported	default	supported
1	T_start	Annex A [3]	m		300s		±10 %	
2	T_acl	Annex A [3]	m		1s		±10 %	
3	T_lspid	Annex A [3]	m		1s		±10 %	
4	T_reset	Annex A [3]	m		60s		±10 %	
5	T_consreq	Annex A [3]	c.1501		10s		±10 %	
6	T_consend	Annex A [3]	c.1501		10s		±10 %	

c.1501: IF A.12/4 THEN m ELSE n/a.

A.5.2.4.4 RTMC function specific information elements

Table A.16 deals with the RTMC function specific information that may be transmitted or received in a RTMC message by the IUT in the service node role.

Indicating support for an item in table A.16 in this subclause states that the implementation has the ability:

- to process the information element when received in any of the RTMC messages for which the presence of this information element is specified;
- to generate and to transmit the information element in any of the RTMC messages for which the inclusion of this information element is specified.

Table A.16: RTMC Information elements

Item	Information elements	Reference (clause)	Status	Support
1	Blocked resource identifier	14.2.2.2 [3]	m	
2	Protocol error cause	14.2.2.3 [3]	m	
3	Repeat indicator	14.2.2.4 [3]	m	
4	Result indicator	14.2.2.5 [3]	m	
5	Resource identifier	14.2.2.6 [3]	m	

A.5.2.5 B-BCC function and protocol

A.5.2.5.1 B-BCC main features

Table A.17: B-BCC procedures

Item	Function	Reference	Status	Support
1	General error handling	13.6.1.5 [4]	m	
2	Bearer connection establishment procedure	13.6.2.1 [4]	m	
3	Bearer connection release procedure	13.6.2.2 [4]	m	
4	Bearer connection modification procedure	13.6.2.3 [4]	o	
5	Branch establishment procedure	13.6.3.1 [4]	o	
6	Branch release procedure	13.6.3.2 [4]	o	
7	B-BCC start-up procedure	13.6.4.5 [4]	m	
8	B-BCC reset procedure	13.6.4.1 [4]	m	
9	B-BCC restart procedure	13.6.4.6 [4]	m	
10	AN fault procedure	13.6.4.2 [4]	m	
11	automatic congestion control	13.5.12 [4]	o	
12	compatibility instruction procedure	13.6.1.5.2 [4]	m	
13	connections characteristic negotiation procedure during connection establishment	13.5.4.3 [4]	o	
14	ATM traffic descriptor modification with negotiation	13.5.6 [4]	o	
15	SAAL establishment procedure	13.6.4.4 [4]	m	

A.5.2.5.2 B-BCC messages

The tables in this subclause ask questions related to the supported B-BCC protocol messages in the service node role.

A.5.2.5.2.1 B-BCC protocol messages received by the Service Node

Indicating support for an item in table A.18 states that the implementation has the ability to recognize the messages listed in that item. Support for the receipt of a particular type of B-BCC protocol message means support for recognizing and acting upon all valid instances of that message type, including all valid message parameters, to the extent required by EN 301 217-1 [4].

Table A.18: B-BCC protocol messages received by the Service Node

Item	message	Reference (clause)	Status	Support
1	ALLOC_ACC	14.3.2.2 [4]	m	
2	ALLOC_REJ	14.3.2.3 [4]	m	
3	ALLOC_COMP_ACC	14.3.2.5 [4]	m	
4	ALLOC_COMP_REJ	14.3.2.6 [4]	m	
5	DEALLOC_ACC	14.3.2.8 [4]	m	
6	BBCC_RESET_ACC	14.3.3.2 [4]	m	
7	BBCC_RESET_REJ	14.3.3.3 [4]	m	
8	BBCC_PRESYNC_ACC	14.3.3.5 [4]	m	
9	BBCC_ PRESYNC_REJ	14.3.3.6 [4]	m	
10	AN_FAULT	14.3.3.7 [4]	m	
11	PROTOCOL_ERROR	14.3.3.9 [4]	m	
12	MODIFY_ACC	14.3.4.2 [4]	c.1801	
13	MODIFY_REJ	14.3.4.3 [4]	c.1801	
14	MODIFY_COMP_ACC	14.3.4.5 [4]	c.1801	
15	MODIFY_COMP_REJ	14.3.4.6 [4]	c.1801	
16	MODIFY_ABORT_ACC	14.3.4.8 [4]	c.1801	
17	MODIFY_ABORT_REJ	14.3.4.9 [4]	c.1801	
18	ADD_BRANCH_ACC	14.3.5.2 [4]	c.1802	
19	ADD_BRANCH_REJ	14.3.5.3 [4]	c.1802	
20	UPDATE_BRANCH_ACC	14.3.5.5 [4]	c.1802	
21	UPDATE_BRANCH_REJ	14.3.5.6 [4]	c.1802	
22	DROP_BRANCH_ACC	14.3.5.8 [4]	c.1802	
23	DROP_ BRANCH_REJ	14.3.5.9 [4]	c.1802	

c.1801: IF A.17/4 THEN m ELSE n/a.
c.1802: IF A.17/5 AND A.17/6 THEN m ELSE n/a.

A.5.2.5.2.2 B-BCC protocol messages transmitted by the Service Node

Indicating support for an item in table A.19 states that the implementation has the ability to transmit the message listed in that item.

Table A.19: B-BCC protocol messages transmitted by the Service Node

Item	message	Reference (clause)	Status	Support
1	ALLOC	14.3.2.1 [4]	m	
2	ALLOC_COMP	14.3.2.4 [4]	m	
3	DEALLOC	14.3.2.7 [4]	m	
4	BBCC_RESET	14.3.3.1 [4]	m	
5	BBCC_PRESYNC	14.3.3.4 [4]	m	
6	AM_FAULT_ACC	14.3.3.8 [4]	m	
7	PROTOCOL_ERROR	14.3.3.9 [4]	m	
8	MODIFY	14.3.4.1 [4]	c.1901	
9	MODIFY_COMP	14.3.4.4 [4]	c.1901	
10	MODIFY_ABORT	14.3.4.7 [4]	c.1901	
11	ADD_BRANCH	14.3.5.1 [4]	c.1902	
12	UPDATE_BRANCH	14.3.5.4 [4]	c.1902	
13	DROP_BRANCH	14.3.5.7 [4]	c.1902	

c.1901: IF A.17/4 THEN m ELSE n/a.
c.1902: IF A.17/5 AND A.17/6 THEN m ELSE n/a.

A.5.2.5.3 Timers used in B-BCC procedures

Table A.20: Timers used in B-BCC procedures

Item	Timer	Reference	Status	Support	Value		Tolerance	
					default	supported	default	supported
1	T_Alloc	13.6.1.6 [4]	m		15 s		±10 %	
2	T_AllocComp	13.6.1.6 [4]	m		15 s		±10 %	
3	T_BbccReset	13.6.1.6 [4]	m		30 s		±10 %	
4	T_BbccPresync	13.6.1.6 [4]	m		15 s		±10 %	
5	T_Dealloc	13.6.1.6 [4]	m		30 s		±10 %	
6	T_Modify	13.6.1.6 [4]	c.2001		15 s		±10 %	
7	T_ModifyComp	13.6.1.6 [4]	c.2001		15 s		±10 %	
8	T_ModifyAbort	13.6.1.6 [4]	c.2001		15 s		±10 %	
9	T_AddBranch	13.6.1.6 [4]	c.2002		15 s		±10 %	
10	T_UpdateBranch	13.6.1.6 [4]	c.2002		15 s		±10 %	
11	T_DropBranch	13.6.1.6 [4]	c.2002		30 s		±10 %	
12	T_BbccStartup	13.6.1.6 [4]	m		180 s		±10 %	
13	T_BbccRestart	13.6.1.6 [4]	m		180 s		±10 %	

c.2001: IF A.17/4 THEN m ELSE n/a.
c.2002: IF A.17/5 AND A.17/6 THEN m ELSE n/a.

A.5.2.5.4 B-BCC function specific information elements

Table A.53 deals with the B-BCC function specific information that may be transmitted or received in a B-BCC protocol message by the IUT in the service node role.

Indicating support for an item in table A.21 in this subclause states that the implementation has the ability:

- to process the information element when received in any of the B-BCC protocol messages for which the presence of this information element is specified;

- to generate and to transmit the information element in any of the B-BCC protocol messages for which the inclusion of this information element is specified.

Table A.21: B-BCC protocol information elements

Item	Information elements	Reference (clause)	Status	Support
1	Connection reference number	14.3.6.2 [4]	m	
2	Connection reference number list	14.3.6.3 [4]	m	
3	User port connection identifier	14.3.6.4 [4]	m	
4	Service port connection identifier	14.3.6.5 [4]	m	
5	Alternative user port VPCI	14.3.6.6 [4]	m	
6	Alternative service port VPCI	14.3.6.7 [4]	m	
7	Automatic congestion level	14.3.6.8 [4]	c.2101	
8	Reject cause	14.3.6.9 [4]	m	
9	Branch identifier	14.3.6.10 [4]	c.2102	
10	Branch identifier list	14.3.6.11 [4]	c.2102	

c.2101: IF A.17/11 THEN m ELSE n/a.
c.2102: IF A.17/5 AND A.17/6 THEN m ELSE n/a.

A.5.2.5.5 B-BCC information elements based on ITU-T Recommendations

Table A.22: ATM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 4.5.6/Q.2931 [14]	14.3.7.1 [4]	m	
2	subclause 8.2.1/Q.2961-1 [15]	14.3.7.1 [4]	o	
3	subclause 8.2.1/Q.2961-3 [17]	14.3.7.1 [4]	o	
4	subclause 8.2.1/Q.2961-4 [18]	14.3.7.1 [4]	o	

Table A.23: Broadband bearer capability

Item	coding according to	Reference	Status	Support
1	subclause 2.6.1/Q.2961-2 [16]	14.3.7.2 [4]	m	
2	subclause 8.2.3/Q.2961-3 [17]	14.3.7.2 [4]	o	
3	subclause 8.2.2/Q.2961-4 [18]	14.3.7.2 [4]	o	
4	subclause 8.2.2/Q.2961-6 [20]	14.3.7.2 [4]	o	

Table A.24: OAM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 4.5.24/Q.2931 [14]	14.3.7.3 [4]	m	

Table A.25: QoS parameter

Item	information element	Reference	Status	Support
1	coding according to subclause 4.5.18/Q.2931 [14]	14.3.7.4 [4]	m	

Table A.26: ABR set-up parameters

Item	coding according to	Reference	Status	Support
1	subclause 8.2.2/Q.2961-3 [17]	14.3.7.5 [4]	o	

Table A.27: End-to-End transit delay

Item	coding according to	Reference	Status	Support
1	subclause 4.5.17/Q.2931 [14]	14.3.7.6 [4]	m	

Table A.28: Cell delay variation tolerance (CDVT)

Item	coding according to	Reference	Status	Support
1	subclause 4.5.17/Q.2961-5 [19]	14.3.7.7 [4]	o	

Table A.29: Alternative ATM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 8.2.1/Q.2962 [21]	14.3.7.8 [4]	o	

Table A.30: Minimum acceptable ATM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 8.2.2/Q.2962 [21]	14.3.7.9 [4]	o	
2	subclause 8.2.4/Q.2961-3 [17]	14.3.7.9 [4]	o	
3	subclause 8.2.4/Q.2961-4 [18]	14.3.7.9 [4]	o	

Table A.31: Protocol error cause

Item	coding according to	Reference	Status	Support
1	Recommendation Q.967-1 [13]	14.3.7.10 [4]	m	

A.5.2.5.6 B-BCC information elements supporting ATM-F UNI 4.0 equipment

Table A.32: Modified information elements

Item	Information elements	Reference (clause)	Status	Support
1	ATM Traffic Descriptor	Annex B.3 [4]	o	
2	Alternative ATM Traffic Descriptor	Annex B.3 [4]	o	

Table A.33: Additional information elements

Item	Information elements	Reference (clause)	Status	Support
1	Extended QoS parameters	Annex B.5.4.2 [4]	o	
2	ABR Additional Parameters	Annex B.5.4.3 [4]	o	

A.6 Access Network

In the tables below only those functions have been specified as "mandatory" which have to be supported in order to ensure the proper operation of the VB5.2 interface. Functions marked as optional are not required by the VB5.2 interface itself but may be required by an AN- or SN-specification.

Subclauses shown in the "Reference" column of all following tables refer to EN 301 217-1 [4] if marked by [4] or to EN 301 005-1 [3] if marked by [3].

A.6.1 Main features

A.6.1.1 General

Table A.34: Main features

Item	Feature	Reference	Status	Support
1	B-ISDN-Access types	7.1 [3]	o	
2	Narrowband access	7.6.3 [3]	o	
3	Non B-ISDN access, ATM-based	8.2 [3]	o	
4	Non B-ISDN access, non ATM-based	8.2 [3]	o	
5	on-demand connectivity at VC level	5.4.3 [4]	m	
6	RTMC function	11.1 [3]	m	
7	B-BCC function	11.2 [4]	m	
8	multiple VB5.2 reference points	10.2 [3]	o	

A.6.1.2 ATM layer characteristics

A.6.1.2.1 Broadband access network connection types

Table A.35: B-AN connection types

Item	Connection type	Reference	Status	Support
1	Type A VP- ptp connections	7.5.1.1 [3]	o	
2	Type A VC- ptp connections	7.5.1.1 [3]	o	
3	Type A VP- ptm connections	7.5.1.2 [3]	o	
4	Type A VC- ptm connections	7.5.1.2 [3]	o	
5	Type B VP- ptp connections (note)	7.5.2 [3]	m	
6	Type B VC- ptp connections (note)	7.5.2 [3]	m	
7	Type C VC- ptp connections	7.5.3.1 [4]	o	
8	Type C VC- ptm connections (unidirectional)	7.5.3.1 [4]	o	
9	Type D VP- ptp connections	7.6.1 [3]	o	
10	Type D VC- ptp connections	7.6.1 [3]	o	
11	Type D VP- ptm connections	7.6.2 [3]	o	
12	Type D VC- ptm connections	7.6.2 [3]	o	
13	Type E VC- ptp connections	7.6.2 [4]	o	
14	Type E VC- ptm connections	7.6.2 [4]	o	
NOTE: Mandatory because of RTMC and B-BCC channel.				

A.6.1.2.2 ATM transfer characteristics

Table A.36: ATM transfer characteristics

Item	Characteristics	Reference (subclause)	Status	Support
1	VP link interconnection function	9.7 [3]	c.3601	
2	VC link interconnection function	9.7 [3]	c.3602	
3	ATM transfer capabilities at the VP level (note 1)	5.1 [3]	m	
4	QoS classes at the VP level (note 2)	12.1 [3]	m	
5	Association of ATCs with QoS classes at the VP level (note 5)	5.1, 6.3, 12.1 [3]	m	
6	ATM transfer capabilities at the VC level (note 3)	5.1 [3]	m	
7	QoS classes at the VC level (note 4)	12.1 [3]	m	
8	Association of ATCs with QoS classes at the VC level (note 5)	5.1, 6.3, 12.1	m	
NOTE 1: The support of ATM transfer capabilities is specified in annex C, table C.1-1. NOTE 2: The support of QoS classes is specified in annex C, table C.2-1. NOTE 3: The support of ATM transfer capabilities is specified in annex C, table C.1-2. NOTE 4: The support of QoS classes is specified in annex C, table C.2-2. NOTE 5: The association of QoS classes with ATM transfer capabilities is specified in ITU-T Recommendation I.356 [9].				

c.3601: IF A.35/1 OR A.35/3 OR A.35/7 OR A.35/9 OR A.35/11 OR A.35/13 THEN m ELSE n/a.

c.3602: IF A.35/2 OR A.35/4 OR A.35/8 OR A.35/10 OR A.35/12 OR A.35/14 THEN m ELSE n/a.

A.6.2 Access types

A.6.2.1 Support of ATM based access types

A.6.2.1.1 Basic characteristics

Table A.37: Basic characteristics of the UNI

Item	Characteristic	Reference	Status	Support
1	UNIs based on a single TC function	6.2.1 [3]	c.3701	
2	UNIs based on multiple TC functions	6.2.1 [3]	c.3702	
3	shared UNIs	6.2.1 [3]	c.3703	

c.3701: IF A.34/1 THEN m ELSE n/a.
c.3702: IF A.34/1 THEN o ELSE n/a.
c.3703: IF A.34/11 THEN o ELSE n/a.

A.6.2.1.2 Physical layer

Table A.38: Physical layer of B-UNIs

Item	Physical layer	Reference	Status	Support
1	E1 (2,048 Mbit/s)	9.4 [3]	c.3801	
2	STM-1 (155,52 Mbit/s)	9.4 [3]	c.3801	
3	STM-4 (622,08 Mbit/s)	9.4 [3]	c.3801	
4	cell based (155,52 Mbit/s)	9.4 [3]	c.3801	
5	cell based (622,08 Mbit/s)	9.4 [3]	c.3801	
6	(25,600 Mbit/s)	1 [3]	c.3801	
7	(51,840 Mbit/s)	1 [3]	c.3801	
8	other (note)		c.3801	
NOTE: Other physical layer options can be added if required.				

c.3801: IF A.34/1 THEN it is mandatory to support at least one of these items.

A.6.2.1.3 ATM layer functions

Table A.39: ATM Layer of B-UNIs

Item	Function	Reference (subclause)	Status	Support
1	Generic flow control (GFC) (note 1)	9.4 [3]	c.3901	
2	Selective cell discard at VPME level	9.5.2 [3]	o	
3	VP UPC	9.5.2 [3]	c.3902	
4	VP traffic shaping	9.5.2 [3]	o	
5	VP resource management cells	9.5.2 [3]	c.3902	
6	EFCI setting at VPE level	9.5.2 [3]	o	
7	F4 OAM cells insertion/extraction at VPE level (note 2)	9.5.2 [3]	m	
8	F4 OAM non-intrusive monitoring at VPE level (note 2)	9.5.2 [3]	m	
9	F4 OAM cells insertion/extraction at a VPCT level (note 2)	9.5.2 [3]	c.3903	
10	Selective cell discard at VCME level	9.5.2 [3]	c.2104	
11	VC UPC	9.5.2 [3]	c.3903	
12	VC traffic shaping	9.5.2 [3]	c.3904	
13	VC resource management cells	9.5.2 [3]	c.3903	
14	EFCI setting at VCE level	9.5.2 [3]	o	
15	F5 OAM cells insertion/extraction at VCE level (note 3)	9.5.2 [3]	c.3904	
16	F5 OAM non-intrusive monitoring at VCE level (note 3)	9.5.2 [3]	c.3903	
NOTE 1: According to EN 301 005-1 [3] only the "uncontrolled transmission" set of procedures shall be supported where the GFC is ignored. NOTE 2: The status for the individual sub-functions is specified in annex B, table B.2-1. NOTE 3: The status for the individual sub-functions is specified in annex B, table B.2-2.				

c.3901: IF A.34/1 THEN m ELSE n/a.
c.3902: IF A.35/1 OR A.35/3 OR A.35/7 OR A.35/9 OR A.35/11 OR A.35/13 THEN m ELSE n/a.
c.3903: IF A.35/2 OR A.35/4 OR A.35/8 OR A.35/10 OR A.35/12 OR A.35/14 THEN m ELSE n/a.
c.3904: IF A.35/2 OR A.35/4 OR A.35/8 OR A.35/10 OR A.35/12 OR A.35/14 THEN o ELSE n/a.

A.6.2.2 Support of non B-ISDN access types

A.6.2.3 Narrowband access types

Table A.40: Narrowband access types

Item	Narrowband access type	Reference	Status	Support
1	via V5.1 interface	8.3.2.1 [3]	c.4001	
2	via V5.2 interface	8.3.2.1 [3]	c.4001	
3	via V3 interface	8.3.2.1 [3]	c.4001	

c.4001: IF A.34/2 THEN it is mandatory to support at least one of these items.

A.6.3 VB5.2 reference point

A.6.3.1 Basic characteristics

Table A.41: Basic characteristics of the VB5.2 interface

Item	Characteristic	Reference	Status	Support
1	one VB5.2 reference point via one TC function	6.2.2 [3]	o	
2	one VB5.2 reference point via multiple TC functions	6.2.2 [3]	o	
3	different VB5.2 reference points via common TC function(s)	6.2.2 [3]	o	

A.6.3.2 Support of a physical interface

Table A.42: Physical interface at the VB5.2 reference point

Item	Characteristic	Reference	Status	Support
1	physical interface(s) at the VB5.2 reference point	6.2.1 [3]	o	
2	a transmission path identification method	6.2.4.5 [3]	c.4201	

c.4201: IF A.42/1 THEN m ELSE n/a.

A.6.3.3 Physical layer at the VB5.2 reference point

Table A.43: Physical layer at the VB5.2 reference point

Item	Physical layer options	Reference	Status	Support
1	PDH/Electrical (G.703 [7])/E3	Annex F [3]	c.4301	
2	SDH/Electrical (G.703 [7])/STM1	Annex F [3]	c.4301	
3	SDH/Optical (G.957 [8] intra-office)/STM1	Annex F [3]	c.4301	
4	SDH/Optical (G.957 [8] intra-office)/STM4	Annex F [3]	c.4301	
5	SDH/Optical (G.957 [8] short haul)/STM1	Annex F [3]	c.4301	
6	SDH/Optical (G.957 [8] short haul)/STM4	Annex F [3]	c.4301	
7	other		c.4301	

c.4301: IF A.42/1 THEN it is mandatory to support at least one of these items.

A.6.3.4 ATM layer functions

Table A.44: ATM layer at the VB5.2 reference point

Item	ATM layer characteristics	Reference (subclause)	Status	Support
1	cell header format according to NNI specification	6.3.1 [3]	m	
2	provision of VPI and VCI values for the RTMC channel	6.3.1 [3]	m	
3	Selective cell discard at VPME level	9.9.2 [3]	o	
4	VP NPC	9.9.2 [3]	o	
5	VP traffic shaping	9.9.2 [3]	o	
6	VP resource management cells	9.9.2 [3]	o	
7	EFCI setting at VPE	9.9.2 [3]	o	
8	F4 OAM cells insertion/extraction at VPE level (note 1)	9.9.2 [3]	m	
9	F4 OAM non-intrusive monitoring at VPE level (note 1)	9.9.2 [3]	m	
10	F4 OAM cells insertion/extraction at VPCT level (note 1)	9.9.2 [3]	m	
11	Selective cell discard at VCME level	9.9.2 [3]	o	
12	VC NPC	9.9.2 [3]	o	
13	VC traffic shaping	9.9.2 [3]	o	
14	VC resource management cells	9.9.2 [3]	o	
15	EFCI setting at VCE	9.9.2 [3]	o	
16	F5 OAM cells insertion/extraction at VCE level(note 2)	9.9.2 [3]	m	
17	F5 OAM non-intrusive monitoring at VCE level (note 2)	9.9.2 [3]	m	
18	F5 OAM cells insertion/extraction at VCCT level (note 2)	9.9.2 [3]	m	
NOTE 1: The status for the individual sub-functions is specified in annex B, table B.3-1. NOTE 2: The status for the individual sub-functions is specified in annex B, table B.3-2.				

A.6.3.5 ATM adaptation layer

A.6.3.6 AAL for the RTMC protocol

Table A.45: ATM layer at the VB5.2 reference point

Item	ATM layer characteristics	Reference	Status	Support
1	cell header format according to NNI specification	6.3.1 [3]	m	
2	provision of VPI value and VCI values for the RTMC channel and the B-BCC channel	10.3 [4]	m	

A.6.3.7 ATM adaptation layer

A.6.3.7.1 AAL for the RTMC protocol

Table A.46: AAL functions for the RTMC protocol

Item	Are the AAL functions for the RTMC protocol compliant with	Reference	Status	Support
1	AAL5 specification	6.4.5.2 [3]	m	
2	SSCOP specification	6.4.5.3 [3]	m	
3	SSCF specification	6.4.5.4 [3]	m	

A.6.3.7.2 AAL for the B-BCC protocol

Table A.47: AAL functions for the B-BCC protocol

Item	Are the AAL functions for the B-BCC protocol compliant with	Reference	Status	Support
1	AAL5 specification	6.4.5.2 [4]	m	
2	SSCOP specification	6.4.5.3 [4]	m	
3	SSCF specification	6.4.5.4 [4]	m	

A.6.3.7.3 AAL for circuit emulation of 2 048 kbit/s signals

Table A.48: AAL functions for circuit emulation of 2 048 kbit/s signals

Item	AAL type	Reference	Status	Support
1	AAL1 for circuit emulation of 2 048 kbit/s signals	8.3.2.2 [3]	c.4801	

c.4801: IF A.40/1 OR A.40/2 /OR A.40/3 THEN m ELSE o.

A.6.3.8 RTMC function and protocol

A.6.3.8.1 RTMC main features

Table A.49: RTMC procedures

Item	RTMC procedures	Reference (clause)	Status	Support
1	General error handling procedures	13.3.1.5 [3]	m	
2	Block and Unblock procedures	13.3.2.1 [3]	m	
3	Shutting down of resources	13.3.2.2 [3]	m	
4	VPCI consistency check procedures	13.3.3 [3]	o	
5	RTMC Start-up procedure	13.3.4.1 [3]	m	
6	Verify LSP ID procedure	13.3.4.2 [3]	m	
7	Reset complete LSP procedure	13.3.4.3 [3]	m	
8	Reset VPC procedure	13.3.4.4 [3]	o	
9	Compatibility instruction procedure	13.6.1.5.2 [3]	m	

A.6.3.8.2 RTMC messages

The tables in this subclause ask questions related to the supported RTMC messages in the Access network role.

A.6.3.8.2.1 RTMC messages received by the Access Network

Indicating support for an item in table A.50 states that the implementation has the ability to recognize the messages listed in that item. Support for the receipt of a particular type of RTMC message means support for recognizing and acting upon all valid instances of that message type, including all valid message parameters, to the extent required by EN 301 005-1 [3].

Table A.50: RTMC messages received by the Access Network

Item	message	Reference (clause)	Status	Support
1	BLOCK_RSC_ACK	14.2.1.2.2 [3]	m	
2	AWAIT_CLEAR_ACK	14.2.1.2.4 [3]	m	
3	AWAIT_CLEAR_COMP	14.2.1.2.5 [3]	m	
4	UNBLOCK_RSC_ACK	14.2.1.2.8 [3]	m	
5	CONS_CHECK_REQ	14.2.1.3.1 [3]	c.5001	
6	CONS_CHECK_END	14.2.1.3.3 [3]	c.5001	
7	LSPID	14.2.1.4.1 [3]	m	
8	REQ_LSPID	14.2.1.4.2 [3]	m	
9	RESET_RSC	14.2.1.4.3 [3]	m	
10	RESET_RSC_ACK	14.2.1.4.4 [3]	m	
11	PROTOCOL_ERROR	14.2.1.4.5 [3]	m	

c.5001: IF A.49/4THEN m ELSE n/a.

A.6.3.8.2.2 RTMC messages transmitted by the Access Network

Indicating support for an item in table A.51 states that the implementation has the ability to transmit the message listed in that item.

Table A.51: RTMC messages transmitted by the Access Network

Item	message	Reference (clause)	Status	Support
1	BLOCK_RSC	14.2.1.2.1 [3]	m	
2	AWAIT_CLEAR	14.2.1.2.3 [3]	m	
3	AWAIT_CLEAR_COMP_ACK	14.2.1.2.6 [3]	m	
4	UNBLOCK_RSC	14.2.1.2.7 [3]	m	
5	CONS_CHECK_REQ_ACK	14.2.1.3.2 [3]	c.5101	
6	CONS_CHECK_END_ACK	14.2.1.3.4 [3]	c.5101	
7	LSPID	14.2.1.4.1 [3]	m	
8	REQ_LSPID	14.2.1.4.2 [3]	m	
9	RESET_RSC	14.2.1.4.3 [3]	m	
10	RESET_RSC_ACK	14.2.1.4.4 [3]	m	
11	PROTOCOL_ERROR	14.2.1.4.5 [3]	m	

c.5101: IF A.49/4THEN m ELSE n/a.

A.6.3.8.3 Timers used in RTMC procedures

Table A.52: Timers used in RTMC procedures

Item	Timer	Reference	Status	Support	Value		Tolerance	
					default	supported	default	supported
1	T_start	Annex A [3]	m		300 s		±10 %	
2	T_block	Annex A [3]	m		1 s		±10 %	
3	T_unblock	Annex A [3]	m		1 s		±10 %	
4	T_acl	Annex A [3]	m		1 s		±10 %	
5	T_lspid	Annex A [3]	m		1 s		±10 %	
6	T_reset	Annex A [3]	m		60 s		±10 %	

A.6.3.8.4 RTMC function specific information elements

Table A.53 deals with the RTMC function specific information that may be transmitted or received in a RTMC message by the IUT in the access network role.

Indicating support for an item in table A.53 in this subclause states that the implementation has the ability:

- to process the information element when received in any of the RTMC messages for which the presence of this information element is specified;
- to generate and to transmit the information element in any of the RTMC messages for which the inclusion of this information element is specified.

Table A.53: RTMC Information elements

Item	Information elements	Reference (clause)	Status	Support
1	Blocked resource identifier	14.2.2.2 [3]	m	
2	Protocol error cause	14.2.2.3 [3]	m	
3	Repeat indicator	14.2.2.4 [3]	m	
4	Result indicator	14.2.2.5 [3]	m	
5	Resource identifier	14.2.2.6 [3]	m	

A.6.3.9 B-BCC function and protocol

A.6.3.9.1 B-BCC main features

Table A.54: B-BCC procedures

Item	Function	Reference	Status	Support
1	General error handling	13.6.1.5 [4]	m	
2	Bearer connection establishment procedure	13.6.2.1 [4]	m	
3	Bearer connection release procedure	13.6.2.2 [4]	m	
4	Bearer connection modification procedure	13.6.2.3 [4]	o	
5	Branch establishment procedure	13.6.3.1 [4]	o	
6	Branch release procedure	13.6.3.2 [4]	o	
7	B-BCC reset procedure	13.6.4.1 [4]	m	
8	AN fault procedure	13.6.4.2 [4]	m	
9	Automatic congestion control	13.5.12 [4]	o	
10	Compatibility instruction procedure	13.6.1.5.2 [4]	m	
11	Connections characteristic negotiation procedure during connection establishment	13.5.4.3 [4]	o	
12	ATM traffic descriptor modification with negotiation	13.5.6 [4]	o	
13	SAAL establishment procedure	13.6.4.4 [4]	m	
14	B-BCC pre-synchronization procedure	13.6.4.3 [4]	m	

A.6.3.9.2 B-BCC messages

The tables in this subclause ask questions related to the supported B-BCC protocol messages in the access network role.

A.6.3.9.2.1 B-BCC protocol messages received by the Access Network

Indicating support for an item in table A.55 states that the implementation has the ability to recognize the messages listed in that item. Support for the receipt of a particular type of B-BCC protocol message means support for recognizing and acting upon all valid instances of that message type, including all valid message parameters, to the extent required by EN 301 217-1 [4].

Table A.55: B-BCC protocol messages received by the Access Network

Item	message	Reference (clause)	Status	Support
1	ALLOC	14.3.2.1 [4]	m	
2	ALLOC_COMP	14.3.2.4 [4]	m	
3	DEALLOC	14.3.2.7 [4]	m	
4	BBCC_RESET	14.3.3.1 [4]	m	
5	BBCC_PRESYNC	14.3.3.4 [4]	m	
6	AM_FAULT_ACC	14.3.3.8 [4]	m	
7	PROTOCOL_ERROR	14.3.3.9 [4]	m	
8	MODIFY	14.3.4.1 [4]	c.5501	
9	MODIFY_COMP	14.3.4.4 [4]	c.5501	
10	MODIFY_ABORT	14.3.4.7 [4]	c.5501	
11	ADD_BRANCH	14.3.5.1 [4]	c.5502	
12	UPDATE_BRANCH	14.3.5.4 [4]	c.5502	
13	DROP_BRANCH	14.3.5.7 [4]	c.5502	

c.5501: IF A.54/4 THEN m ELSE n/a.
c.5501: IF A.54/5 AND A.54/6 THEN m ELSE n/a.

A.6.3.9.2.2 B-BCC protocol messages transmitted by the Access Network

Indicating support for an item in table A.56 states that the implementation has the ability to transmit the message listed in that item.

Table A.56: B-BCC protocol messages transmitted by the Access Network

Item	message	Reference (clause)	Status	Support
1	ALLOC_ACC	14.3.2.2 [4]	m	
2	ALLOC_REJ	14.3.2.3 [4]	m	
3	ALLOC_COMP_ACC	14.3.2.5 [4]	m	
4	ALLOC_COMP_REJ	14.3.2.6 [4]	m	
5	DEALLOC_ACC	14.3.2.8 [4]	m	
6	BBCC_RESET_ACC	14.3.3.2 [4]	m	
7	BBCC_RESET_REJ	14.3.3.3 [4]	m	
8	BBCC_PRESYNC_ACC	14.3.3.5 [4]	m	
9	BBCC_ PRESYNC_REJ	14.3.3.6 [4]	m	
10	AN_FAULT	14.3.3.7 [4]	m	
11	PROTOCOL_ERROR	14.3.3.9 [4]	m	
12	MODIFY_ACC	14.3.4.2 [4]	c.5601	
13	MODIFY_REJ	14.3.4.3 [4]	c.5601	
14	MODIFY_COMP_ACC	14.3.4.5 [4]	c.5601	
15	MODIFY_COMP_REJ	14.3.4.6 [4]	c.5601	
16	MODIFY_ABORT_ACC	14.3.4.8 [4]	c.5601	
17	MODIFY_ABORT_REJ	14.3.4.9 [4]	c.5601	
18	ADD_BRANCH_ACC	14.3.5.2 [4]	c.5602	
19	ADD_BRANCH_REJ	14.3.5.3 [4]	c.5602	
20	UPDATE_BRANCH_ACC	14.3.5.5 [4]	c.5602	
21	UPDATE_BRANCH_REJ	14.3.5.6 [4]	c.5602	
22	DROP_BRANCH_ACC	14.3.5.8 [4]	c.5602	
23	DROP_ BRANCH_REJ	14.3.5.9 [4]	c.5602	

c.5601: IF A.54/4 THEN m ELSE n/a.
c.5601: IF A.54/5 AND A.54/6 THEN m ELSE n/a.

A.6.3.9.3 Timers used in B-BCC procedures

Table A.57: Timers used in B-BCC procedures

Item	Timer	Reference	Status	Support	Value		Tolerance	
					default	supported	default	supported
1	T_AnFault	13.6.1.6 [4]	m		15 s		±10 %	
2	T_ConnEst	13.6.1.6 [4]	m		180 s		±10 %	
3	T_Modification	13.6.1.6 [4]	c.5701		180 s		±10 %	
4	T_BranchEst	13.6.1.6 [4]	c.5702		185 s		±10 %	

c.5701: IF A.54/4 THEN m ELSE n/a.
c.5701: IF A.54/5 AND A.54/6 THEN m ELSE n/a.

A.6.3.9.4 B-BCC function specific information elements

Table A.58 deals with the B-BCC function specific information that may be transmitted or received in a B-BCC protocol message by the IUT in the access network role.

Indicating support for an item in table A.58 in this subclause states that the implementation has the ability:

- to process the information element when received in any of the B-BCC protocol messages for which the presence of this information element is specified;
- to generate and to transmit the information element in any of the B-BCC protocol messages for which the inclusion of this information element is specified.

Table A.58: B-BCC protocol information elements

Item	Information elements	Reference (clause)	Status	Support
1	Connection reference number	14.3.6.2 [4]	m	
2	Connection reference number list	14.3.6.3 [4]	m	
3	User port connection identifier	14.3.6.4 [4]	m	
4	Service port connection identifier	14.3.6.5 [4]	m	
5	Alternative user port VPCI	14.3.6.6 [4]	m	
6	Alternative service port VPCI	14.3.6.7 [4]	m	
7	Automatic congestion level	14.3.6.8 [4]	c.5801	
8	Reject cause	14.3.6.9 [4]	m	
9	Branch identifier	14.3.6.10 [4]	c.5802	
10	Branch identifier list	14.3.6.11 [4]	c.5802	

c.5801: IF A.54/9 THEN m ELSE n/a.
c.5801: IF A.54/5 AND A.54/6 THEN m ELSE n/a.

A.6.3.9.5 B-BCC information elements based on ITU-T Recommendations

Table A.59: ATM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 4.5.6/Q.2931 [14]	14.3.7.1 [4]	m	
2	subclause 8.2.1/Q.2961-1 [15]	14.3.7.1 [4]	o	
3	subclause 8.2.1/Q.2961-3 [17]	14.3.7.1 [4]	o	
4	subclause 8.2.1/Q.2961-4 [18]	14.3.7.1 [4]	o	

Table A.60: Broadband bearer capability

Item	coding according to	Reference	Status	Support
1	subclause 2.6.1/Q.2961-2 [16]	14.3.7.2 [4]	m	
2	subclause 8.2.3/Q.2961-3 [17]	14.3.7.2 [4]	o	
3	subclause 8.2.2/Q.2961-4 [18]	14.3.7.2 [4]	o	
4	subclause 8.2.2/Q.2961-6 [20]	14.3.7.2 [4]	o	

Table A.61: OAM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 4.5.24/Q.2931 [14]	14.3.7.3 [4]	m	

Table A.62: QoS parameter

Item	coding according to	Reference	Status	Support
1	subclause 4.5.18/Q.2931 [14]	14.3.7.4 [4]	m	

Table A.63: ABR set-up parameters

Item	coding according to	Reference	Status	Support
1	subclause 8.2.2/Q.2961-3 [17]	14.3.7.5 [4]	o	

Table A.64: End-to-End transit delay

Item	coding according to	Reference	Status	Support
1	subclause 4.5.17/Q.2931 [14]	14.3.7.6 [4]	m	

Table A.65: Cell delay variation tolerance (CDVT)

Item	coding according to	Reference	Status	Support
1	subclause 4.5.17/Q.2961-5 [14]	14.3.7.7 [4]	o	

Table A.66: Alternative ATM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 8.2.1/Q.2962 [21]	14.3.7.8 [4]	o	

Table A.67: Minimum acceptable ATM traffic descriptor

Item	coding according to	Reference	Status	Support
1	subclause 8.2.2/Q.2962 [21]	14.3.7.9 [4]	o	
2	subclause 8.2.4/Q.2961-3 [17]	14.3.7.9 [4]	o	
3	subclause 8.2.3/Q.2961-4 [18]	14.3.7.9 [4]	o	

Table A.68: Protocol error cause

Item	coding according to	Reference	Status	Support
1	Recommendation Q.967-1 [13]	14.3.7.10 [4]	m	

A.6.3.9.6 B-BCC information elements supporting ATM-F UNI 4.0 equipment

Table A.69: Modified information elements

Item	Information elements	Reference (clause)	Status	Support
1	ATM Traffic Descriptor	Annex B.3 [4]	o	
2	Alternative ATM Traffic Descriptor	Annex B.3 [4]	o	

Table A.70: Additional information elements

Item	Information elements	Reference (clause)	Status	Support
1	Extended QoS parameters	Annex B.5.4.2 [4]	o	
2	ABR Additional Parameters	Annex B.5.4.3 [4]	o	

Annex B (informative): Status of OAM functions based F4/F5 flows

This annex provides information about the status of the individual sub-functions related to the application of OAM F4 and F5 flows.

The status of most of the F4/F5 OAM functions have been specified as "mandatory" within the relevant tables of the present document. However some of the individual sub-functions are considered as optional according to EN 301 005-1 [3] in conjunction with the ITU-T Recommendations I.610 [11] and I.732 [12]. In the tables below only those sub-functions have been specified as "mandatory" which are required to be supported in order to ensure the proper operation of the VB5.2 interface. Functions marked as optional are not required by the VB5.2 interface itself but may be required by an AN or SN specification.

In tables B.1-1/2, B.2-1/2, B.3-1/2 item 2 "continuity check non intrusive monitoring" would be "mandatory" according to ETS 300 404 [1], the ETSI version of ITU-T Recommendation I.610 [11]. However if the support of that capability is set to mandatory within the VB5 specification this would preclude the support of terminals which are not implemented according to the ETS 300 404 [1].

B.1 OAM functions at service port (SN-side)

Table B.1-1: F4 OAM functions at service port (SN-side)

Item	Function (note)	Status	
		VPE	VPCT
		Table A.8: items 8, 9	Table A.8: item 10
1	AIS/RDI non-intrusive monitoring	m	n/a
2	continuity check non-intrusive monitoring	o	n/a
3	performance monitoring non-intrusive monitoring	o	n/a
4	VP AIS insertion	m	n/a
5	VP RDI insertion	n/a	m
6	VP AIS/RDI extraction	n/a	m
7	end-to-end continuity check	n/a	o
8	segment continuity check	o	n/a
9	end-to-end performance monitoring	n/a	o
10	segment performance monitoring	o	n/a
11	end-to-end loopback at a source point	o	c.1-101
12	end-to-end loopback at a loopback point	n/a	o
13	segment loopback at a source point	o	n/a
14	segment loopback at a loopback point	o	n/a
15	end-to-end activation/deactivation	n/a	o
16	segment activation/deactivation	o	n/a
NOTE: Detailed description of the individual function listed in items 1 to 16 of this table is provided in ITU-T Recommendation I.732 [12] clause 5.			

c.1-101: IF A.11/5 THEN m ELSE o.

Table B.1-2: F5 OAM functions at service port (SN-side)

Item	Function (note)	Status	
		VCE	VCCT
		Table A.8: items 17, 18	Table A.8: item 19
1	AIS/RDI non-intrusive monitoring	m	n/a
2	continuity check non-intrusive monitoring	o	n/a
3	performance monitoring non-intrusive monitoring	o	n/a
4	VC AIS insertion	m	n/a
5	VC RDI insertion	n/a	m
6	VC AIS/RDI extraction	n/a	m
7	end-to-end continuity check	n/a	o
8	segment continuity check	o	n/a
9	end-to-end performance monitoring	n/a	o
10	segment performance monitoring	o	n/a
11	end-to-end loopback at a source point	o	o
12	end-to-end loopback at a loopback point	n/a	o
13	segment loopback at a source point	o	n/a
14	segment loopback at a loopback point	o	n/a
15	end-to-end activation/deactivation	n/a	o
16	segment activation/deactivation	o	n/a
NOTE: Detailed description of the individual function listed in items 1 to 16 of this table is provided in ITU-T- Recommendation I.732 [12] clause 5.			

B.2 OAM functions at user port

Table B.2-1: F4 OAM functions at user port

Item	Function (note)	Status	
		VPE	VPCT
		Table A.39: items 7, 8	Table A.39: item 9
1	AIS/RDI non-intrusive monitoring	m	n/a
2	continuity check non-intrusive monitoring	o	n/a
3	performance monitoring non-intrusive monitoring	o	n/a
4	VP AIS insertion	m	n/a
5	VP RDI insertion	n/a	m
6	VP AIS/RDI extraction	n/a	m
7	end-to-end continuity check	n/a	o
8	segment continuity check	o	n/a
9	end-to-end performance monitoring	n/a	o
10	segment performance monitoring	o	n/a
11	end-to-end loopback at a source point	o	o
12	end-to-end loopback at a loopback point	n/a	o
13	segment loopback at a source point	o	n/a
14	segment loopback at a loopback point	o	n/a
15	end-to-end activation/deactivation	n/a	o
16	segment activation/deactivation	o	n/a
NOTE: Detailed description of the individual function listed in items 1 to 16 of this table is provided in ITU-T- Recommendation I.732 [12] clause 5.			

Table B.2-2: F5 OAM functions at user port

Item	Function (note)	Status
		VCE
		Table A.39: items 15, 16
1	AIS/RDI non-intrusive monitoring	m
2	continuity check non-intrusive monitoring	m
3	performance monitoring non-intrusive monitoring	o
4	VC AIS insertion	m
5	VC RDI insertion	n/a
6	VC AIS/RDI extraction	n/a
7	end-to-end continuity check	n/a
8	segment continuity check	o
9	end-to-end performance monitoring	n/a
10	segment performance monitoring	o
11	end-to-end loopback at a source point	o
12	end-to-end loopback at a loopback point	n/a
13	segment loopback at a source point	o
14	segment loopback at a loopback point	o
15	end-to-end activation/deactivation	n/a
16	segment activation/deactivation	o
NOTE: Detailed description of the individual function listed in items 1 to 16 of this table is provided in ITU-T- Recommendation I.732 [12] clause 5.		

B.3 OAM functions at service port (AN-side)

Table B.3-1: F4 OAM functions at service port (AN-side)

Item	Function (note)	Status	
		VPE	VPCT
		Table A.44: items 8, 9	Table A.44: item 10
1	AIS/RDI non-intrusive monitoring	m	n/a
2	continuity check non-intrusive monitoring	o	n/a
3	performance monitoring non-intrusive monitoring	o	n/a
4	VP AIS insertion	m	n/a
5	VP RDI insertion	n/a	m
6	VP AIS/RDI extraction	n/a	m
7	end-to-end continuity check	n/a	o
8	segment continuity check	o	n/a
9	end-to-end performance monitoring	n/a	o
10	segment performance monitoring	o	n/a
11	end-to-end loopback at a source point	o	c.3-101
12	end-to-end loopback at a loopback point	n/a	o
13	segment loopback at a source point	o	n/a
14	segment loopback at a loopback point	o	n/a
15	end-to-end activation/deactivation	n/a	o
16	segment activation/deactivation	o	n/a
NOTE: Detailed description of the individual function listed in items 1 to 16 of this table is provided in ITU-T- Recommendation I.732 [12] clause 5.			

c.3-101: IF A.11/5 THEN m ELSE o.

Table B.3-2: F5 OAM functions at service port (AN-side)

Item	Function (note)	Status	
		VCE	VCCT
		Table A.44: items16, 17	Table A.44: item 18
1	AIS/RDI non-intrusive monitoring	m	n/a
2	continuity check non-intrusive monitoring	o	n/a
3	performance monitoring non-intrusive monitoring	o	n/a
4	VC AIS insertion	m	n/a
5	VC RDI insertion	n/a	m
6	VC AIS/RDI extraction	n/a	m
7	end-to-end continuity check	n/a	o
8	segment continuity check	o	n/a
9	end-to-end performance monitoring	n/a	o
10	segment performance monitoring	o	n/a
11	end-to-end loopback at a source point	o	o
12	end-to-end loopback at a loopback point	n/a	o
13	segment loopback at a source point	o	n/a
14	segment loopback at a loopback point	o	n/a
15	end-to-end activation/deactivation	n/a	o
16	segment activation/deactivation	o	n/a
NOTE: Detailed description of the individual function listed in items 1 to 16 of this table is provided in ITU-T- Recommendation I.732 [12] clause 5.			

Annex C (informative): Support of ATM transfer capabilities and QoS classes

This annex provides information about the support of ITU-T Recommendation I.371 [10] ATM transfer capabilities and ITU-T Recommendation I.356 [9] QoS classes at the VP sublayer and VC sublayer.

C.1 ATM transfer capabilities

Table C.1-1: ATM transfer capabilities at the VP sublayer

Item	ATC at the VP sublayer (note 1)	Reference (subclause)	Status
1	DBR	5.1	o
2	SBR1	5.1	o
3	SBR2	5.1	o
4	SBR3	5.1	o
5	ABR	5.1	o
6	ABT-DT	5.1	o
7	ABT-IT	5.1	o
8	others (note 2)		o
NOTE 1: Detailed description of the individual ATC listed in items 1 to 7 of this table is provided in ITU-T- Recommendation I.371 [10]. NOTE 2: This item may cover ATC as defined at ATM Forum traffic management specification (af-tm-0056.000) [22].			

Table C.1-2: ATM transfer capabilities at the VC sublayer

Item	ATC at the VC sublayer (note 1)	Reference (subclause)	Status
1	DBR	5.1	o
2	SBR1	5.1	o
3	SBR2	5.1	o
4	SBR3	5.1	o
5	ABR	5.1	o
6	ABT-DT	5.1	o
7	ABT-IT	5.1	o
8	others (note 2)		o
NOTE 1: Detailed description of the individual ATC listed in items 1 to 7 of this table is provided in ITU-T- Recommendation I.371 [10]. NOTE 2: This item may cover ATC as defined at ATM Forum traffic management specification (af-tm-0056.000) [22].			

C.2 QoS classes

Table C.2-1: QoS classes at the VP sublayer

Item	QoS classes at the VP sublayer (note 1)	Reference (subclause)	Status
1	Class 1	12.1	o
2	Class 2	12.1	o
3	Class 3	12.1	o
4	U Class	12.1	o
5	others (note 2)		o

NOTE 1: Detailed description of the individual QoS Class listed in items 1 to 4 of this table is provided in ITU-T- Recommendation I.356 [9].
NOTE 2: This item may cover QoS classes as defined at ATM Forum traffic management specification

Table C.2-2: QoS classes at the VC sublayer

Item	Connection type (note 1)	Reference (subclause)	Status
1	Class 1	12.1	o
2	Class 2	12.1	o
3	Class 3	12.1	o
4	U Class	12.1	o
5	others (note 2)		o

NOTE 1: Detailed description of the individual QoS class listed in items 1 to 4 of this table is provided in ITU-T- Recommendation I.356 [9].
NOTE 2: This item may cover QoS classes as defined at ATM Forum traffic management specification

History

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