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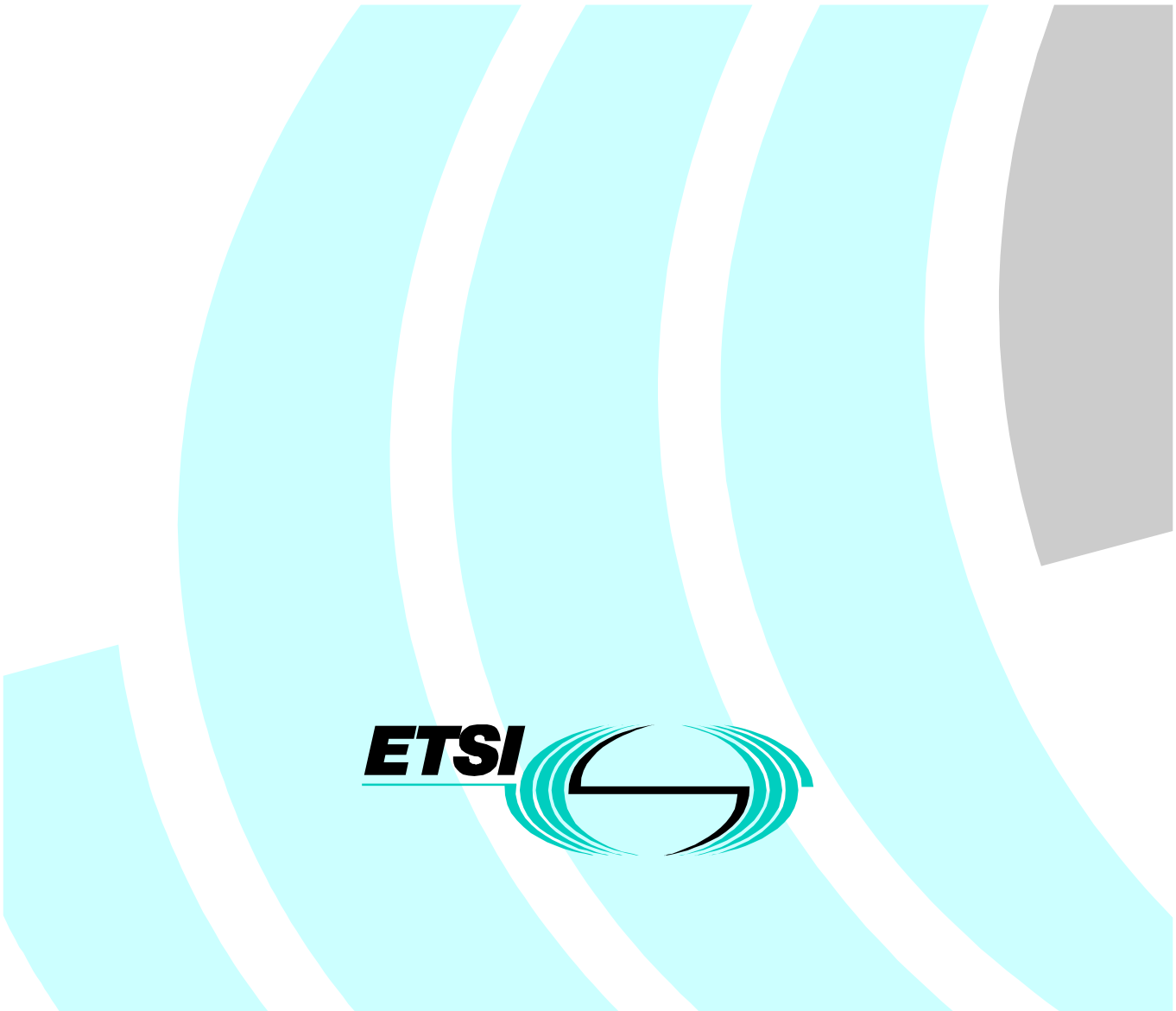
European Standard (Telecommunications series)

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 4: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT)



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Contents

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN) and is now submitted for the Public Enquiry phase of the ETSI standards Two-step Approval Procedure.

The present document is part 4 of a multi-part standard covering the interfaces at the VB5.2 reference point as described below:

Part 1: "Interface specification";

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

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

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

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

Introduction

General

The work on a new broadband VB reference point concept was initiated by ETSI Technical Committee SPS to consider possible new structures and reference points for the connection of new broadband and combined narrowband/broadband access arrangements to Service Nodes (SN), in co-operation with other TCs.

The VB5 reference point concept, based on ITU-T Recommendation G.902 [8], was split into two variants. The first variant based on an ATM cross-connect with provisioned connectivity, called the VB5.1 reference point, is described in the present document. The other variant which further enables on-demand connectivity within the AN, called the VB5.2 reference point, is by EN 301 217-1 [1].

Relationship between the VB5.1 and VB5.2 reference point concepts

VB5.2 extends the capabilities at the VB5.1 reference point to include on-demand connectivity in the AN under the control of SN. The major common features between the VB5.1 and VB5.2 interfaces are:

- both VB5 interfaces support B-ISDN as well as narrowband and other non-B-ISDN customer access types;
- both VB5 interfaces support ATM multiplexing/cross-connecting in the AN at the VP and/or VC level.

The Real Time Management Co-ordination (RTMC) protocol is common for the VB5.1 and the VB5.2 reference points.

1 Scope

The present document specifies the Abstract Test Suite (ATS), the Abstract Test Method (ATM), ATS conventions, the partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for testing the conformity of an implementation to the BBCC specification of interfaces at the VB5.2 reference point between an Access Network (AN) and a Service Node (SN). A proforma for the testing report (PCTR) is also included.

There are in fact two separate test suites, as well as two PCTR proformas, one version for testing the conformity of an AN implementation, the other one for a SN.

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] ETSI EN 301 217-1 (V1.2): "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".

[2] ETSI EN 301 217-2 (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 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[3] ETSI EN 301 217-3 (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 3: Test Suite Structure and Test Purposes (TSS&TP)".

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

[5] ISO/IEC 9646-1: "Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[6] ISO/IEC 9646-2: "Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".

[7] ISO/IEC 9646-7: "Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 7: Protocol Implementation Conformance Statement".

[8] ITU-T Recommendation G.902: "Framework Recommendation on functional access networks (AN) Architecture and functions, access types, management and service node aspects".

[9] ISO/IEC 9646: "Information technology - Open systems interconnection - Conformance testing methodology and framework".

[10] ITU-T Recommendation M.3010: "Principles for a Telecommunications management network".

[11] ITU-T Recommendation Q.2931: "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".

[12] ETSI EN 300 443-1 (V1.3): "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for basic call/bearer control; Part 1: Protocol specification [ITU-T Recommendation Q.2931 (1995), modified]".

[13] ETSI EN 301 067-1 (V1.1): "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; Negotiation during call/connection establishment phase; Part 1: Protocol specification [ITU-T Recommendation Q.2962 (1996), modified]".

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

[15] ITU-T Recommendation Q.2961.5: "Digital subscriber signalling system No. 2 - Additional traffic parameters: Additional traffic parameters for cell delay variation tolerance indication".

[16] ETSI EN 301 005-4 (V1.1): "V Interfaces at the Digital Service Node (SN); Interfaces at the VB5.1 Reference Point for the Support of Broadband or Combined Narrowband and Broadband Access Networks (ANs); Part 4: Abstract Test Suite (ATS) and Partial Protocol Implementation eXtra Information for Testing (PIXIT) Proforma Specification".

[17] ETSI EN 301 068: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. Two (DSS2) Protocol; Connection Characteristics; ATM Transfer Capability and Traffic Parameter Indication".

3 Definitions and abbreviations

3.1 Definitions

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

- terms defined in EN 301 217-1 [1];
- terms defined in ISO/IEC 9646-1 [5] and in ISO/IEC 9646-2 [6].

In particular, the following terms defined in ISO/IEC 9646 [9] apply:

Abstract Test Suite (ATS)
Abstract Test Method (ATM)
Implementation Conformance Statement (ICS)
Implementation Under Test (IUT)
Implementation eXtra Information for Testing (IXIT)
Lower Tester (LT)
PICS proforma
PIXIT proforma
Point of Control and Observation (PCO)
Protocol Implementation Conformance Statement (PICS)
Protocol Implementation eXtra Information for Testing (PIXIT)
Service Access Point (SAP)
Single Party Testing (SPyT)
System Under Test (SUT)
Upper Tester (UT)
TTCN.GR
TTCN.MP
Protocol Conformance Test Report (PCTR)
PCTR proforma

3.2 Abbreviations

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

AAL	ATM Adaptation Layer
AAL-SAP	AAL - Service Access Point
AN	Access Network
ATM	Asynchronous Transfer Mode
BBCC	Broadband Bearer Connection Control
B-ISDN	Broadband ISDN
B-ISUP	Broadband ISDN Signalling User Part
B-UNI	Broadband UNI
BA	Basic (rate) Access
CPE	Customer Premises Equipment
CPN	Customer Premises Network
ET	Equipment Terminal
FSM	Finite State Machine
ID	Identity
IE	Information Element
INI	Inter-Network Interface
ISDN	Integrated Services Digital Network
LAN	Local Area Network
LE	Local Exchange
LME	Layer Management Entity
LMI	Local Management Interface
LSP	Logical Service Port
LUP	Logical User Port
MIB	Management Information Base
MSC	Message Sequence Chart
N-ISDN	Narrowband ISDN
NNI	Network-to-Network Interface
OAM	Operations Administration and Maintenance
PDH	Plesiochronous Digital Hierarchy
PDU	Protocol Data Units
PSP	Physical Service Port
PSTN	Public Switched Telephone Network
PUP	Physical User Port
Q3	"Q" management interface reference point as ITU-T Recommendation M.3010 [10]
RTMC	Real Time Management Co-ordination
SAAL	Signalling ATM Adaptation Layer
SAP	Service Access Point
SAR	Segmentation and Reassembly
SDH	Synchronous Digital Hierarchy
SDL	Specification and Description Language
SDU	Service Data Units
SN	Service Node
SNI	Service Node Interface
SP	Service Port
SPS	Signalling Protocols and Switching
SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
TC	Technical Committees
TE	Terminal Equipment
TMN	Telecommunication Management Network
TP	Transmission Path
UNI	User-Network Interface
VB	Broadband "V" reference point
VC	Virtual Channel (ATM)
VCC	VC Connection
VCCT	VCC Termination

VCE	Virtual Channel Entity
VCI	VC Identifier
VCL	VC Link
VCME	VC Multiplex Entity
VP	Virtual Path
VPC	VP Connection
VPCI	VP Connection Identifier
VPCT	VPC Termination
VPE	VP Entity
VPI	VP Identifier
VPL	VP Link
VPME	VP Multiplex Entity
VUP	Virtual User Port

4 Test architecture

4.1 Abstract Test Method (ATM)

This clause describes the Abstract Test Method (ATM) and the Point of Control and Observation (PCO) used to test the VB5.2 BBCC protocol for the AN and SN components.

The remote test method is used for VB5.2 BBCC conformance testing, since the VB5.2 implementations are not mandated to offer a direct access to the upper service boundary (i.e. to the "mee" and "cee" service primitives). The co-ordination procedures can only be expressed in an informal way.

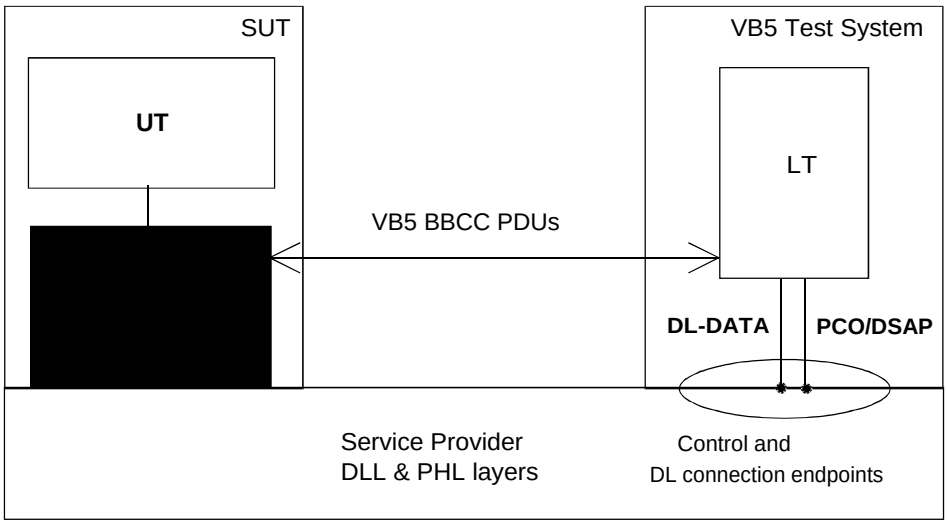


Figure 1: Remote single layer test method applied to the VB5.2 BBCC testing

LT: A Lower Tester (LT) is located in the VB5.2 test system. It controls and observes the behaviours of the IUT.

DSAP: A unique Data link Service Access Point (DSAP) is defined at the VB5.2 interface and commonly used for exchanging service data of the BBCC protocol functional entities.

PCO: The PCO for BBCC testing is located on the DSAP. All test events at the PCO are specified in terms of data link Abstract Service Primitives (ASPs) and network layer PDUs.

UT: No explicit Upper Tester (UT) exists in the test system. However, the SUT needs to carry out some UT functions to achieve some effects of test co-ordination procedures. Designing ATS, the capability of the VB5.2 application functions may be taken into account. The controls of the IUT will be implied or informally expressed in the ATS, but no assumption shall be made regarding their feasibility or realization. An example of such informal controls could be to provoke start up of the IUT in the SN. An example of implied controls is the automatic response of VB5.2 application functions in the AN.

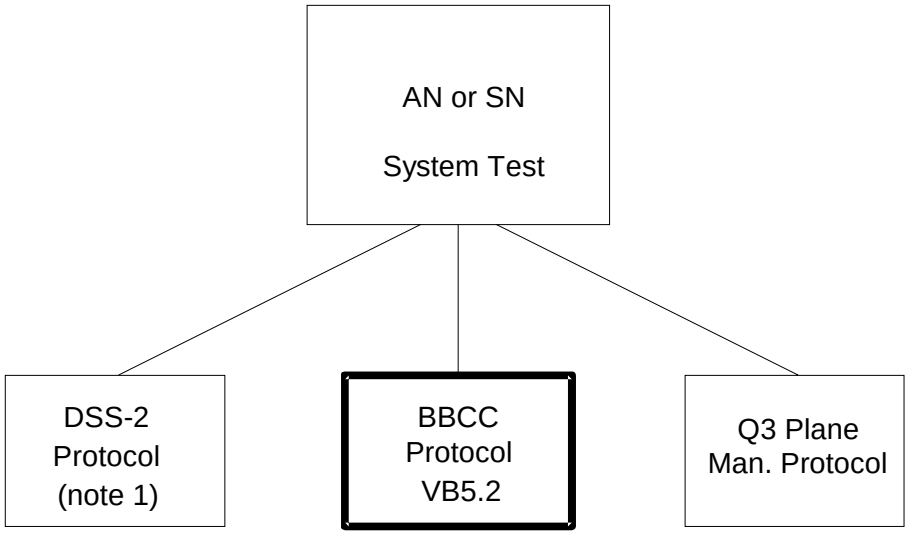
VB5-BBCC: The PDU conveying this information will be transferred to and from the tester via a single, dedicated virtual connection.

4.2 Scope of test purposes / test cases and additional testing

The specified IUT behaviour cannot be fully controlled and observed via a single PCO. Additional testing is thus required to cover such behaviour (in some cases a short description of such additional testing requirements has been appended to the related BBCC test purposes).

The actual testing of these requirements can only be performed if additional means are provided to access internal data, which cannot be interrogated via BBCC messages. One way of performing this is to use an ad-hoc tester loaded into the SUT, if available. This is not typically the case. A practical approach is to consider that any Network Element comprises several protocol interfaces, each of which is first tested at the individual protocol level (again, these tests typically have to leave out a number of protocol requirements, if a remote test method is used).

A second hierarchical level of testing (see figure 2) could cover a substantial number of such untested requirements by checking interactions between two or more protocols, which have passed individual conformance testing. This is however outside the scope of the present document.



NOTE: The DSS-2 protocol is not terminated in the AN.

Figure 2: Example of hierarchical test architecture applied beyond VB5.2 testing

5 ATS conventions

This clause describes the conventions applied to define the ATS and gives the naming conventions chosen for the different elements of the ATS.

The ATS conventions are intended to give a better understanding of the ATS but they describe also the conventions made for the development of the ATS, thus for any later maintenance purposes or further development of the ATS, the conventions described in this clause shall be considered.

5.1 Naming conventions

5.1.1 Declarations part

This subclause describes the naming conventions chosen for the elements of the ATS declarations part.

5.1.1.1 Test suite type and structured type definitions - By Reference

In order to avoid misalignment problems with the standard, all the types used in this ATS have been defined by reference. The same ASN1 file containing the standard type definitions has been used as module containing the referenced type definitions.

EXAMPLE:

TypeName	*TypeReference*	*ModuleIdentifier*
TransId	TransId	DataModule

5.1.1.2 Test suite parameter declarations

The test suite parameter identifiers are composed of strings in uppercase letters and separated by underscores.

If the test suite parameter references a PIXIT item, the prefix "PIX_" is used.

EXAMPLE:

ParameterName	*Type*
PIX_LSP_VPCI_1	VPCI

5.1.1.3 Test case selection expression definitions

The test case selection expressions are based on PICS or PIXIT test suite parameter definitions.

EXAMPLE 1: PIC_AN_multipoint taking the value TRUE or FALSE, based on a PICS statement.

EXAMPLE 2: PIX_MODIFY_COMP_REJ taking the value TRUE or FALSE, based on a PIXIT statement.

5.1.1.4 Test case variable declarations

The test case variable identifiers are composed of string in lowercase letters starting by the lowercase string "TCV_".

EXAMPLE: TCV_transIdVal

5.1.1.5 Timer declarations

Several kinds of timers can be distinguished:

1) standardized:

   Those defined in the standard, e.g. T_Alloc, use the same name as in the standard, beginning with a capital "T". Their duration is defined in the PIXIT under same name, for example PIX_T_Alloc.

2) for testing supervision:

   In order to control the duration of individual test cases, a specific timer and its duration, PIX_T_supervision, is defined.

3) for operator action:

   In order to control the duration of action required to set up the IUT into a given state, or to generate a specific action on the IUT, a timer T_Operator is defined.

5.1.1.6 ASP type definitions

ASP definitions follow the PDU specification when a corresponding definition exists, with the addition of a prefix like SN.

EXAMPLE: SN_AddBranch

5.1.1.7 PDU names

The PDU names used in the TTCN test suite are the ones used in the ASN.1 declarations. The correspondence with the names used in the specifications is given in table 1.

Table 1

PDU names in Specifications	PDU names in Test Suite
ALLOC	Alloc
ALLOC_ACC	AllocAcc
ALLOC_REJ	AllocRej
ALLOC_COMP	AllocComp
ALLOC_COMP_ACC	AllocCompAcc
ALLOC_COMP_REJ	AllocCompRej
DEALLOC	Dealloc
DEALLOC_ACC	DeallocAcc
BBCC_RESET	BbccReset
BBCC_RESET_ACC	BbccResetAcc
BBCC_RESET_REJ	BbccResetRej
BBCC_PRESYNC	BbccPresync
BBCC_PRESYNC_ACC	BbccPresyncAcc
BBCC_PRESYNC_REJ	BbccPresyncRej
AN_FAULT	AnFault
AN_FAULT_ACC	AnFaultAcc
PROTOCOL_ERROR	ProtocolError
MODIFY	Modify
MODIFY_ACC	ModifyAcc
MODIFY_REJ	ModifyRej
MODIFY_COMP	ModifyComp
MODIFY_COMP_ACC	ModifyCompAcc
MODIFY_COMP_REJ	ModifyCompRej
MODIFY_ABORT	ModifyAbort
MODIFY_ABORT_ACC	ModifyAbortAcc
MODIFY_ABORT_REJ	ModifyAbortRej
ADD_BRANCH	AddBranch
ADD_BRANCH_ACC	AddBranchAcc
ADD_BRANCH_REJ	AddBranchRej
UPDATE_BRANCH	UpdateBranch
UPDATE_BRANCH_ACC	UpdateBranchAcc
UPDATE_BRANCH_REJ	UpdateBranchRej
DROP_BRANCH	DropBranch
DROP_BRANCH_ACC	DropBranchAcc
DROP_BRANCH_REJ	DropBranchRej

5.1.2 Constraints naming

This subclause describes the naming conventions chosen for the elements of the ATS constraints part.

Constraint identifiers commence with lowercase c, followed by the PDU_TYPE, followed by a numerical value like 001, 002, etc.

Type Definition	Constraint Definition Example
ALLOC	c_ALLOC_ 002
ALLOC_COMP	c_ALLOC_COMP_001

The constraint values are defined, showing the specified values, like ‘49’H for protocol discriminator, or the values to be chosen by the implementer (PIX_xx for PIXIT values) for each Information Element (IE).

5.1.3 Simplified representation of parameters in constraints

In order to reduce the complexity of constraint definitions, some **packed parameters** have been introduced. These parameters are all of type OCTET STRING. They represent the concatenation of several individual fields under a unique name. In the TTCN constraints, the value assigned to such parameters may either appear explicitly, (e.g. as a hexadecimal value), or it may be represented symbolically, in the form of a PIXIT parameter name.

There are two classes of packed parameters:

One class comprises 5 packed parameters which are specific to the BBCC protocol and whose content is derived from the VB5.2 interface specification itself. Under normal circumstances, the parameters **msgCompatInd** and **iECompatInd,** are always assigned the value ‘80’H while parameter **transIdLength** is always assigned the value ‘03’H. The last two, **usrPortConnIdIEOctet5** and **srvcPortConnIdIEOctet5** can be assigned a small number of distinct values, depending on the level of the identifier (complete port, VPCI only, VPCI/VCI combination).

The second class contains 7 packed parameters whose name is of type "**XXX_contents**". These parameters are used in Information Elements defined in detail in other standards, such as ITU-T recommendations. These packed parameters are used to hold the entire content of the specific part of the information element, i.e. the part which follows the common IE information. They are of type "octet string" of variable size. The value of the "XXX_contents" parameter is always represented by a symbolic PIXIT name. In other words, in TTCN constraints, the parameter appears under the form of "XXX_contents **PIX_name"** where PIX_name represents a value to be specified by the implementer, in accordance with the coding rules of the Information Element to which it belongs. The assigned value shall also take account of the capabilities supported by the VB5.2 application functions in the System Under Test. Examples are: broadband bearer capability values, ATM traffic descriptor values, QOS parameter values, end to end transit delay values, OAM traffic descriptor values, ABR setup parameter values, CDVT descriptor values.

Details of the definition of packed parameters are given in annex E.

5.1.4 Dynamic part

This subclause describes the naming conventions chosen for the elements of the ATS dynamic part.

5.1.4.1 Test case identifier

There is a one-to-one mapping between the Test Purposes and the test cases. The identifier of a TC and its corresponding Test Purpose is described in table 2.

Table 2: TP identifier naming convention scheme

Identifier:		**VB5_<i>_<IUT>_<pp>_<cc>_<nn>**	
VB5		VB5.2 reference point specification	
<i>		BBCC protocol at interface VB5.2	
<IUT>		AN: BBCC System in the Access Network is the IUT SN: BBCC System in the Service Node is the IUT	
<pp>	=	procedure identifier like	
		ST	StartUp
		CE	Connection Establishment
		CR	Connection Release
		CM	Connection Modify
		BE	Branch Establishment
		BR	Branch Release
		HK	House Keeping (Reset, Fault)
		CEH	Common Error Handling
<cc>	=	test category:	
		CA	Capability tests
		BV	Valid Behaviour tests
		BI	Invalid Behaviour tests
		TI	Timer tests
<nn>	=	sequential number:	(01-99)

Example of test purpose and test case name: **VB5_BBCC_AN_CM_BV_02**

5.1.4.2 Preamble identifier

A preamble defines a set of TTCN statements needed to initialize the IUT then carry the IUT to a particular state or a particular call configuration situation from which the test case shall start. Here is the list of preambles.

AN is the IUT

P_startAN: starts the AN configuration

P_AN_1ptp: starts AN and allocates one Point to Point connection

P_AN_1ptm: starts AN and allocates one Point to Multipoint connection, first branch only is established

P_AN_1ptmTwoB: starts AN and allocates Point to Multipoint PtM1 connection, PtM1 connection has two branches

P_AN_1ptmThreeB: starts AN and allocates PtM2 Point to Multipoint connection, PtM2 connection has three branches

P_AN_2ptp: starts AN and allocates two Point-to-Point connections, PtP1 and PtP2

P_AN_2ptm: starts AN and allocates two Point to Multipoint connections, PtM1 connection has two branches, PtM2 has three branches

P_AN_1ptp1ptm: starts AN and allocates one Point to Point and one Point to Multipoint connections

SN is the IUT

P_startSN: starts the SN configuration

P_SN_1ptp: starts SN and allocates one Point-to-Point connection

P_SN_1ptm: starts SN and allocates one Point to Multipoint connection, first branch only is established

P_SN_1ptmTwoB: starts SN and allocates PtM1 Point to Multipoint connection, PtM1 connection has two branches

P_SN_1ptmThreeB: starts AN and allocates PtM2 Point to Multipoint connection, PtM2 connection has three branches

P_SN_2ptp: starts AN and allocates two Point to Point connections

P_SN_2ptm: starts AN and allocates two Point to Multipoint connections, PtM1 connection has two branches, PtM2 has three branches

P_SN_1ptp1ptm: starts AN and allocates one Point to Point and one Point to Multipoint connections

5.1.4.3 Postamble identifier

There is no postamble defined, as each new test is beginning by a complete reset, it cannot be corrupted by side effects of the previous executed test case.

5.1.4.4 Default identifier

A default is a set of TTCN statements called here OtherwiseFail, which is used to complete the behaviour tree related to the test case. It covers some different alternatives bringing the test case to a FAIL or INCONCLUSIVE verdict.

Annex A (normative): ATS for BBCC at VB5.2 interface

A.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in Adobe Portable Document Format™ files (Suite_SN.PDF and Suite_AN.PDF contained in archive en_30121704v010101c0.ZIP) which accompanies the present document.

A.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in ASCII files (Suite_SN.MP and Suite_AN.MP contained in archive en_30121704v010101c0.ZIP) which accompanies the present document.

NOTE: Where an ETSI Abstract Test Suite (in TTCN) is published in both .GR and .MP format these two forms shall be considered equivalent. In the event that there appears to be syntactical or semantic differences between the two then the problem shall be resolved and the erroneous format (whichever it is) shall be corrected.

Annex B (normative): Partial PIXIT proforma for BBCC at VB5.2 interface

The PIXIT proforma is based on ISO/IEC 9646-6 [7]. Any additional information needed can be found in the present document.

B.1 Identification summary

Table B.1

PIXIT number:	
Test laboratory name:	
Date of issue:	
Issued to:	

B.2 ATS summary

Table B.2

Protocol specification:	EN 301 217-1 [1]
Protocol to be tested:	
ATS specification:	EN 301 217-4
Abstract test method:	Remote test method

B.3 Test laboratory

Table B.3

Test laboratory identification:	
Test laboratory manager:	
Means of testing:	
SAP address:	

B.4 Client identification

Table B.4

Client identification:	
Client test manager:	
Test facilities required:	

B.5 SUT

Table B.5

Name:	
Version:	
SCS number:	
Machine configuration:	
Operating system identification:	
IUT identification:	
PICS reference for IUT:	
Limitations of the SUT:	
Environmental conditions:	

B.6 Protocol layer information

B.6.1 Protocol identification

Table B.6

Name:	EN 301 217-1 [1]: VB5.2 interface
Version:	
PICS references:	EN 301 217-2 [2]

B.6.2 IUT information

B.6.2.1 Stimuli for the IUT

Implicit send events are used in TTCN to indicate the need for a stimulus. The expected result of stimulation is defined by the constraint associated to the implicit send event, which specifies the parameters which are relevant to the stimulus, such as connection reference, port identifiers, traffic parameters, etc. The implicit send event names are identical to the resulting PDU names.

Table B.7: Actions required to stimulate the IUT

Item	Stimuli name <IUT ! *name*>	ACTIONS What actions have to be taken to:	Invocation description
1	AnFault	Cause the AN to request notification to the SN that a fault regarding the specified bearer connection has been detected	
2	Alloc	Cause the SN to request the allocation of a bearer connection according to specified parameters	
3	AllocComp	Cause the SN to request to complete the allocation of a bearer connection according to specified parameters	
4	Dealloc	Cause the SN to request the de-allocation of a specified bearer connection	
5	Modify	Cause the SN to request the modification of a specified bearer connection	
6	ModifyComp	Cause the SN to request to complete the modification of a specified bearer connection	
7	ModifyAbort	Cause the SN to request to abort the modification of a specified bearer connection	
8	AddBranch	Cause the SN to request the allocation of a specified additional branch to a point to multipoint connection	
9	UpdateBranch	Cause the SN to request to update the allocation of an additional branch to a point to multipoint connection	
10	DropBranch	Cause the SN to request the deletion of a branch of a point to multipoint connection	
11	BbccReset	Cause the SN to request the reset of specified resources at LUP or an LSP and hence the relevant bearer connection(s)	
12	BbccPresync	Cause the SN to invoke the BBCC restart procedure	

B.6.2.2 PIXIT Parameter values

Table B.8: Parameter values

Item	Parameter name	Parameter type (ASN1)	Explanation	Value in implementation
1	PIX_ALLOC_COMP_REJ	BOOLEAN	Guides the Connection Control Function	
2	PIX_MODIFY_COMP_REJ _	BOOLEAN	Guides the Connection Control Function	
3	PIX_MODIFY_ABORT_REJ	BOOLEAN	Guides the Connection Control Function	
4	PIX_BBCC_PRESYNC_REJ	BOOLEAN	Guides the Connection Control Function	
5	PIX_simulate_congestion	BOOLEAN	Guides the Connection Control Function	
6	PIX_ConnRefNoVal_PtP1	ConnRefNoVal	Point to point connection	
7	PIX_ConnRefNoVal_PtP2	ConnRefNoVal	Point to point connection	
8	PIX_ConnRefNoVal_Unknown_PtP	ConnRefNoVal	Unknown Point to point connection	
9	PIX_ConnRefNoVal_PtM1	ConnRefNoVal	Point to Multipoint connection, two branches	
10	PIX_ConnRefNoVal_PtM2	ConnRefNoVal	Point to Multipoint connection, three branches	
11	PIX_ConnRefNoVal_Unknown_PtM	ConnRefNoVal	Unknown Point to Multipoint connection	
12	PIX_PtM1_BranchId1	BranchIdVal	Branch Id 1 of PtM1	
13	PIX_PtM1_BranchId2	BranchIdVal	Branch Id 2 of PtM1	
14	PIX_PtM1_Unknown_BranchId	BranchIdVal	Branch Id unknown of PtM1	
15	PIX_PtM2_BranchId1	BranchIdVal	Branch Id 1 of PtM2	
16	PIX_PtM2_BranchId2	BranchIdVal	Branch Id 2 of PtM2	
17	PIX_PtM2_BranchId3	BranchIdVal	Branch Id 3 of PtM2	
18	PIX_PtMu_BranchId1	BranchIdVal	Branch Id 1 of PtMu	
19	PIX_LUP_Id1	LogId	LUP Id	
20	PIX_LUP_Id2	LogId	LUP Id	
21	PIX_LUP_Id3	LogId	LUP Id	
22	PIX_LUP_VPCI1	VPCI	VPCI at LUP ptp1	
23	PIX_LUP_VPCI2	VPCI	VPCI at LUP ptp unknown	
24	PIX_LUP_VPCI3	VPCI	VPCI at LUP ptm1	
25	PIX_LUP_VPCI4	VPCI	VPCI at LUP ptm1	
26	PIX_LUP_VPCI6	VPCI	VPCI at LUP ptm2	
27	PIX_LUP_VPCI7	VPCI	VPCI at LUP ptm2	
28	PIX_LUP_VPCI8	VPCI	VPCI at LUP ptm2	
29	PIX_LUP_VPCIB	VPCI	VPCI at LUP ptp2	
30	PIX_LUP_VPCIC	VPCI	VPCI at LUP alternative	
31	PIX_LUP_VCI1	VCI	VCI at LUP ptp1	
32	PIX_LUP_VCI2	VCI	VCI at LUP ptp unknown	
33	PIX_LUP_VCI3	VCI	VCI at LUP ptm1	
34	PIX_LUP_VCI4	VCI	VCI at LUP ptm1	
35	PIX_LUP_VCI6	VCI	VCI at LUP ptm2	
36	PIX_LUP_VCI7	VCI	VCI at LUP ptm2	
37	PIX_LUP_VCI8	VCI	VCI at LUP ptm2	
38	PIX_LUP_VCIB	VCI	VCI at LUP ptp2	
39	PIX_LSP_VPCI1	VPCI	VPCI at LSP ptp1	
40	PIX_LSP_VPCI3	VPCI	VPCI at LSP ptm1	
41	PIX_LSP_VPCI4	VPCI	VPCI at LSP ptm2	
42	PIX_LSP_VPCI6	VPCI	VPCI at LSP ptp2	
43	PIX_LSP_VPCIC	VPCI	VPCI at LSP alternative	
44	PIX_LSP_VCI1	VCI	VCI at LSP ptp1	
45	PIX_LSP_VCI3	VCI	VCI at LSP ptm1	
46	PIX_LSP_VCI4	VCI	VCI at LSP ptm2	
47	PIX_LSP_VCI6	VCI	VCI at LSP ptp2	
48	PIX_endtoend_transit_delay	OCTET_STRING	Length is: (3-6) Default value is: 3	

Item	Parameter name	Parameter type (ASN1)	Explanation	Value in implementation
49	PIX_ATM_traffic_descriptor	OCTET_STRING	Length is: (0-50) Default value is: 2	
50	PIX_ATM_altern_traffic_descriptor	OCTET_STRING	Length is: (0-50) Default value is: 2	
51	PIX_minimum_ATM_traffic_descriptor	OCTET_STRING	Length is: (0-50) Default value is: 2	
52	PIX_OAM_traffic_descriptor	OCTET_STRING	Length is: (2) Default value is: 2	
53	PIX_Broadband_capability	OCTET_STRING	Length is: (3-4) Default value is: 3	
54	PIX_Broadband_capability_ABR	OCTET_STRING	Length is: (3-4) Default value is: 3	
55	PIX_ABR_setup_parameter	OCTET_STRING	Length is: (2-28) Default value is: 2	
56	PIX_QOS_parameter	OCTET_STRING	Length is: (2) Default value is: 2	
57	PIX_CDVT_descriptor	OCTET_STRING	Length is: (3-18) Default value is: 3	

Table B.9: Timer values

Item	Parameter	Parameter type	Explanation	Value in Implementation
1	PIX_T_AnFault	Integer	Timer value	
2	PIX_T_Alloc	Integer	Timer value	
3	PIX_T_AllocComp	Integer	Timer value	
4	PIX_T_BbccReset	Integer	Timer value	
5	PIX_T_BbccPresync	Integer	Timer value	
6	PIX_T_Dealloc	Integer	Timer value	
7	PIX_T_Modify	Integer	Timer value	
8	PIX_T_ModifyComp	Integer	Timer value	
9	PIX_T_ModifyAbort	Integer	Timer value	
10	PIX_T_AddBranch	Integer	Timer value	
11	PIX_T_UpdateBranch	Integer	Timer value	
12	PIX_T_DropBranch	Integer	Timer value	
13	PIX_T_ConnEst	Integer	Timer value	
14	PIX_T_Modification	Integer	Timer value	
15	PIX_T_BranchEst	Integer	Timer value	
16	PIX_T_BbccStartup	Integer	Timer value	
17	PIX_T_BbccRestart	Integer	Timer value	
18	PIX_T_supervision	Integer	Supervision timer	

Annex C (normative): Protocol Conformance Test Report (PCTR) proforma when testing BBCC in AN

The PCTR proforma is based on ISO/IEC 9646-6 [7]. Any additional information needed can be found in the present document.

C.1 Identification summary

C.1.1 Protocol conformance test report

Table C.1

PCTR number:	
PCTR date:	
Corresponding SCTR number:	
Corresponding SCTR date:	
Test laboratory identification:	
Test laboratory manager:	
Signature:	

C.1.2 IUT identification

Table C.2

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

C.1.3 Testing environment

Table C.3

PIXIT number:	
ATS specification:	
Abstract test method:	
Means of testing identification:	
Date of testing:	
Conformance log reference(s):	
Retention date for log reference(s):	

C.1.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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C.1.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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C.2 IUT conformance status

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements as specified in clause C.3 in the present document and there are no "FAIL" verdicts to be recorded in clause C.6 strike the words "has or" otherwise strike the words "or has not".

C.3 Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

C.4 Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded in clause C.6 of the present document strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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C.5 Static conformance review report

If clause C.3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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C.6 Test campaign report

Table C.4

ATS reference	Selected	Run	Verdict	Observations
VB5_BBCC_AN_CE_BV_01	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_02	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BI_01	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BI_02	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BI_03	Yes/No	Yes/No		
VB5_BBCC_AN_CE_TI_01	Yes/No	Yes/No		
Variations of AN_CE_BV_01				
VB5_BBCC_AN_CE_BV_01a	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01b	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01c	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01d	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01e	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01f	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01g	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01h	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_01i	Yes/No	Yes/No		
PtM				
VB5_BBCC_AN_CE_BV_11	Yes/No	Yes/No		
VB5_BBCC_AN_CE_BV_12	Yes/No	Yes/No		
Connection Release CR				
Single connection				
VB5_BBCC_AN_CR_BV_01	Yes/No	Yes/No		
VB5_BBCC_AN_CR_BV_02	Yes/No	Yes/No		
VB5_BBCC_AN_CR_BV_03	Yes/No	Yes/No		
VB5_BBCC_AN_CR_BI_01	Yes/No	Yes/No		
Multiple connections				
VB5_BBCC_AN_CR_BV_11	Yes/No	Yes/No		
VB5_BBCC_AN_CR_BV_12	Yes/No	Yes/No		
VB5_BBCC_AN_CR_BV_13	Yes/No	Yes/No		
VB5_BBCC_AN_CR_BI_11	Yes/No	Yes/No		
VB5_BBCC_AN_CR_BI_12	Yes/No	Yes/No		
Connection Modification CM				
VB5_BBCC_AN_CM_BV_01	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BV_02	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BV_03	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BV_04	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BI_01	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BI_02	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BI_03	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BI_04	Yes/No	Yes/No		
VB5_BBCC_AN_CM_BI_05	Yes/No	Yes/No		
VB5_BBCC_AN_CM_TI_01	Yes/No	Yes/No		
VB5_BBCC_AN_CM_TI_02	Yes/No	Yes/No		
VB5_BBCC_AN_CM_TI_03	Yes/No	Yes/No		
VB5_BBCC_AN_CM_TI_04	Yes/No	Yes/No		
VB5_BBCC_AN_CM_TI_05	Yes/No	Yes/No		

Branch Establishment BE				
VB5_BBCC_AN_BE_BV_01	Yes/No	Yes/No		
VB5_BBCC_AN_BE_BV_02	Yes/No	Yes/No		
VB5_BBCC_AN_BE_BV_03	Yes/No	Yes/No		
VB5_BBCC_AN_BE_BV_04	Yes/No	Yes/No		
VB5_BBCC_AN_BE_TI_01	Yes/No	Yes/No		
VB5_BBCC_AN_BE_BI_01	Yes/No	Yes/No		
VB5_BBCC_AN_BE_BI_02	Yes/No	Yes/No		
VB5_BBCC_AN_BE_BI_03	Yes/No	Yes/No		
Branch Release BR				
VB5_BBCC_AN_BR_BV_01	Yes/No	Yes/No		
VB5_BBCC_AN_BR_BV_02	Yes/No	Yes/No		
VB5_BBCC_AN_BR_BI_01	Yes/No	Yes/No		
VB5_BBCC_AN_BR_BI_02	Yes/No	Yes/No		
VB5_BBCC_AN_BR_BI_03	Yes/No	Yes/No		
Housekeeping HK (Reset, Fault)				
VB5_BBCC_AN_HK_BV_01	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BV_02	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BV_03	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BV_04	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BV_05	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BV_06	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BV_07	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BV_08	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BI_01	Yes/No	Yes/No		
VB5_BBCC_AN_HK_BI_02	Yes/No	Yes/No		
VB5_BBCC_AN_HK_TI_01	Yes/No	Yes/No		
Common Error Handling (CEH)				
VB5_BBCC_AN_CEH_BI_01	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_02	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_03	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_04	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_05	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_06	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_07	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_11	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_12	Yes/No	Yes/No		
VB5_BBCC_AN_CEH_BI_13	Yes/No	Yes/No		

C.7 Observations

Additional information relevant to the technical content of the PCTR are given here.

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Annex D (normative): Protocol Conformance Test Report (PCTR) proforma when testing BBCC in SN

The PCTR proforma is based on ISO/IEC 9646-6 [7]. Any additional information needed can be found in the present document.

D.1 Identification summary

D.1.1 Protocol conformance test report

Table D.1

PCTR number:	
PCTR date:	
Corresponding SCTR number:	
Corresponding SCTR date:	
Test laboratory identification:	
Test laboratory manager:	
Signature:	

D.1.2 IUT identification

Table D.2

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

D.1.3 Testing environment

Table D.3

PIXIT number:	
ATS specification:	
Abstract test method:	
Means of testing identification:	
Date of testing:	
Conformance log reference(s):	
Retention date for log reference(s):	

D.1.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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D.1.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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D.2 IUT conformance status

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements as specified in clause D.3 in the present document and there are no "FAIL" verdicts to be recorded in clause D.6 strike the words "has or" otherwise strike the words "or has not".

D.3 Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

D.4 Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded in clause D.6 of the present document strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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D.5 Static conformance review report

If clause D.3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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D.6 Test campaign report

Table D.4

ATS reference	Selected	Run	Verdict	Observations
Start-up procedure				
Basic capability tests				
VB5_BBCC_SN_ST_CA_01	Yes/No	Yes/No		
Connection Establishment CE				
PtP				
VB5_BBCC_SN_CE_BV_01	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_02	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_03	Yes/No	Yes/No		
VB5_BBCC_SN_CE_TI_01	Yes/No	Yes/No		
VB5_BBCC_SN_CE_TI_02	Yes/No	Yes/No		
Variations of SN_CE_BV_01				
VB5_BBCC_SN_CE_BV_01b	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_01c	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_01d	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_01e	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_01f	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_01g	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_01h	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_01i	Yes/No	Yes/No		
PtM				
VB5_BBCC_SN_CE_BV_11	Yes/No	Yes/No		
VB5_BBCC_SN_CE_BV_12	Yes/No	Yes/No		
Connection Release CR				
Single connection				
VB5_BBCC_SN_CR_BV_01	Yes/No	Yes/No		
VB5_BBCC_SN_CR_BV_02	Yes/No	Yes/No		
VB5_BBCC_SN_CR_TI_01	Yes/No	Yes/No		
Multiple connections				
VB5_BBCC_SN_CR_BV_11	Yes/No	Yes/No		
VB5_BBCC_SN_CR_BV_12	Yes/No	Yes/No		
VB5_BBCC_SN_CR_BV_13	Yes/No	Yes/No		
Connection Modification CM				
VB5_BBCC_SN_CM_BV_01	Yes/No	Yes/No		
VB5_BBCC_SN_CM_BV_02	Yes/No	Yes/No		
VB5_BBCC_SN_CM_BV_03	Yes/No	Yes/No		
VB5_BBCC_SN_CM_BV_04	Yes/No	Yes/No		
VB5_BBCC_SN_CM_BV_05	Yes/No	Yes/No		
VB5_BBCC_SN_CM_TI_01	Yes/No	Yes/No		
VB5_BBCC_SN_CM_TI_02	Yes/No	Yes/No		
VB5_BBCC_SN_CM_TI_03	Yes/No	Yes/No		
Branch Establishment BE				
VB5_BBCC_SN_BE_BV_01	Yes/No	Yes/No		
VB5_BBCC_SN_BE_BV_02	Yes/No	Yes/No		
VB5_BBCC_SN_BE_BV_03	Yes/No	Yes/No		
VB5_BBCC_SN_BE_TI_01	Yes/No	Yes/No		

VB5_BBCC_SN_BE_TI_02	Yes/No	Yes/No		
ATS reference	**Selected**	**Run**	**Verdict**	**Observations**
Branch Release BR				
VB5_BBCC_SN_BR_BV_01	Yes/No	Yes/No		
VB5_BBCC_SN_BR_BV_02	Yes/No	Yes/No		
VB5_BBCC_SN_BR_TI_01	Yes/No	Yes/No		
Housekeeping HK (Reset, Fault)				
VB5_BBCC_SN_HK_BV_01	Yes/No	Yes/No		
VB5_BBCC_SN_HK_BV_02	Yes/No	Yes/No		
VB5_BBCC_SN_HK_BV_03	Yes/No	Yes/No		
VB5_BBCC_SN_HK_BV_04	Yes/No	Yes/No		
VB5_BBCC_SN_HK_BV_05	Yes/No	Yes/No		
VB5_BBCC_SN_HK_BV_06	Yes/No	Yes/No		
VB5_BBCC_SN_HK_TI_01	Yes/No	Yes/No		
VB5_BBCC_SN_HK_TI_02	Yes/No	Yes/No		
Common Error Handling (CEH)				
VB5_BBCC_SN_CEH_BI_01	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_02	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_03	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_04	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_05	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_06	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_07	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_11	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_12	Yes/No	Yes/No		
VB5_BBCC_SN_CEH_BI_13	Yes/No	Yes/No		

D.7 Observations

Additional information relevant to the technical content of the PCTR are given here.

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Annex E (informative): ASN.1 data definitions for the Abstract Test Suite

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DataModule DEFINITIONS ::=

-- The following types do not exactly match the specification types.  Some of
-- the subtypes are subsumed into higher level types in an effort to simplify.
-- This DataModule was used for the ETS TTCN available as a separate electronic
-- annex.

BEGIN

ProtDiscr ::= OCTET STRING (SIZE(1))  --Always defaulted to '049'H, EN 301 005-4, Annex E

TransId ::= SEQUENCE      -- Transaction Identifier, EN 301 005-4, Annex E
 {  transIdLength   [1] TransIdLength,
    transIdFlag     [2] TransIdFlag,
    transIdVal      [3] TransIdVal
 }

MsgType ::= OCTET STRING (SIZE (1))     --EN 301 005-4, Annex E

MsgCompatInd ::= OCTET STRING (SIZE (1))

MsgLength ::= OCTET STRING (SIZE (2))   --EN 301 005-4, Annex E

TransIdFlag ::= BIT STRING (SIZE(1))    --EN 301 005-4, Annex E

TransIdLength ::= OCTET STRING (SIZE (1))

TransIdVal ::= BIT STRING (SIZE (23))
    --EN 301 005-4, Annex E


SpareBits4 ::= BIT STRING (SIZE(4))    --Always defaulted to '0000'B, EN 301 005-4, Annex E
SpareBits3 ::= BIT STRING (SIZE(3))    --Always defaulted to '000'B, EN 301 005-4, Annex E
SpareBits2 ::= BIT STRING (SIZE(2))    --Always defaulted to '00'B, EN 301 005-4, Annex E
SpareBits1 ::= BIT STRING (SIZE(1))    --Always defaulted to '0'B, EN 301 005-4, Annex E

ConnRefNoIE ::= SEQUENCE  -- EN 301 217-1, 14.3.6.2
 {  commonIEInfo    CommonIEInfo,
connRefNoVal    ConnRefNoVal
 }

ConnRefNoVal ::= OCTET STRING (SIZE (3))
    --EN 301 217-1, Figure 33

ConnRefNos ::= SET SIZE (MaxConnRefNos) OF ConnRefNoVal


MaxConnRefNos ::= INTEGER

ConnRefNoListIE ::= SEQUENCE -- EN 301 217-1, 14.3.6.3
 {  commonIEInfo    CommonIEInfo,
    connRefNos  ConnRefNos
 }
    -- length of IE not to shall not exceed the maximum message length

UsrPortConnIdIE ::= SEQUENCE  -- EN 301 217-1, 14.3.6.4
 {  commonIEInfo                    CommonIEInfo,
    usrPortConnIdIEOctet5       UsrPortConnIdIEOctet5,
    lgclUsrPortId                   LogId,
    vpci                                [1] VPCI OPTIONAL,
    vci                                 [2] VCI  OPTIONAL
 }


UsrPortConnIdIEOctet5 ::= OCTET STRING (SIZE (1))


LogId ::= OCTET STRING (SIZE (3))     --logical port identifier

VPCI ::= OCTET STRING (SIZE (2))

VCI ::= OCTET STRING (SIZE (2))

SrvcPortConnIdIE ::= SEQUENCE  -- EN 301 217-1, 14.3.6.5
 {  commonIEInfo                    CommonIEInfo,
    srvcPortConnIdIEOctet5  SrvcPortConnIdIEOctet5,
    vpci                                [1] VPCI OPTIONAL,
```

```
    vci                                 [2] VCI OPTIONAL
 }

SrvcPortConnIdIEOctet5 ::= OCTET STRING (SIZE (1))

AltUsrPortVPCIIE ::= SEQUENCE  -- EN 301 217-1, 14.3.6.6
 {  commonIEInfo        CommonIEInfo,
    vpcis                   SET OF VPCI
 }
    -- length of IE shall not exceed the maximum message length

AltSrvcPortVPCIIE ::= SEQUENCE -- EN 301 217-1, 14.3.6.7
 {commonIEInfo      CommonIEInfo,
    vpcis               SET OF VPCI
 }
    -- length of IE shall not exceed the maximum message length

AutoCongLvlIE ::= SEQUENCE -- EN 301 217-1, 14.3.6.8
 {  commonIEInfo        CommonIEInfo,
    congLvl                 CongLvl
 }

CongLvl ::= OCTET STRING (SIZE (8)) --Table 56, EN 301 217-1

RejCause ::= BIT STRING (SIZE (7)) -- Table 57, EN 301 217-1

RejCauseOctet ::= SEQUENCE  -- EN 301 217-1, Figure 38
 {  extBitLast  ExtBitLast,
    rejCause        RejCause
 }

RejCauseIE ::= SEQUENCE -- EN 301 217-1, 14.3.6.9
 {  commonIEInfo        CommonIEInfo,
    rejCauseOctet       RejCauseOctet
 }

BranchIdIE::= SEQUENCE  -- EN 301 217-1, 14.3.6.10
 {  commonIEInfo        CommonIEInfo,
    branchIdVal         BranchIdVal
 }

BranchIdVal ::= OCTET STRING (SIZE (2))
    -- EN 301 217-1, Figure 39

BranchIdListIE  ::= SEQUENCE  -- EN 301 217-1, 14.3.6.11
 {  commonIEInfo        CommonIEInfo,
    branchIds           BranchIds }

BranchIds ::= SET SIZE (MaxBranchIds) OF BranchIdVal

MaxBranchIds ::= INTEGER

ProtErrCauseIE ::= SEQUENCE
 {  commonIEInfo         CommonIEInfo,
    protErrCause         ProtErrCauseContent
 }


ProtErrCauseContent ::= SEQUENCE
 {  extBitLast          ExtBitLast,
    protErrCauseVal     ProtErrCauseVal,
    protErrCauseDiagn   ProtErrCauseDiagn OPTIONAL
 }

ProtErrCauseVal ::= BIT STRING (SIZE (7))

ProtErrCauseDiagn ::= OCTET STRING (SIZE (2))

QoSParamsIE  ::= SEQUENCE -- EN 301 217-1, 14.3.7.4
 {  commonIEInfo   CommonIEInfo,
    contents            QoSContents
 }

QoSContents ::= OCTET STRING (SIZE (2))

ATMTrfcDscrptrIE ::= CHOICE -- EN 301 217-1, 14.3.7.1
  {  send       [1]  SndATMDscrptrIE,
     receive    [2]  RcvATMDscrptrIE
  }

SndATMDscrptrIE ::=  SEQUENCE
  {  commonIEInfo   CommonIEInfo,
     contents           ATM-Contents
```

```
  }

RcvATMDscrptrIE ::= SEQUENCE
  {     commonIEInfo        CommonIEInfo,
            contents SEQUENCE
            {  rates        SET OF Rates
            }
  }

Rates ::= SEQUENCE
  { identifier Rate-Id,
    contents   BIT STRING(SIZE(24))
  }

TrafficMgmtOptions ::= SEQUENCE
  { trafficManagementOptionsId      BIT STRING (SIZE (8)), -- ('10111111'B),
        spare-345678                BIT STRING(SIZE(6)), -- Spare bits, normally set to '000000'B
        tb                          BIT STRING(SIZE(1)),
        tf                          BIT STRING(SIZE(1))
  }

ATM-Contents ::= OCTET STRING(SIZE(0..50))  -- EN 300 443-1 subclause 4.5.6

BrdbndBcapIE ::= SEQUENCE   -- EN 300 443-1 subclause 4.5.7
  { commonIEInfo    CommonIEInfo,
        contents            BBC-contents
  }

BBC-contents ::=    OCTET STRING(SIZE(3..4))

OAMTrfcDscrptrIE ::= SEQUENCE   -- EN 300 443-1 subclause 4.5.24
  { commonIEInfo    CommonIEInfo,
        contents            OAM-contents
  }

OAM-contents ::= OCTET STRING (SIZE (2))

ABRSetupParamsIE ::= SEQUENCE    -- Q.2961.3, 8.2.2
  { commonIEInfo    CommonIEInfo,
        contents            ABR-contents
  }

ABR-contents ::= OCTET STRING (SIZE (2..28)) -- Q.2961.3, 8.2.2

EndEndTrnstDlayIE ::= SEQUENCE -- EN 300 443-1 subclause 4.5.17
  { commonIEInfo    CommonIEInfo,
        contents            EETD-contents
  }

EETD-contents ::= OCTET STRING (SIZE (3..6))

CDVTDscrptrIE ::=  SEQUENCE  -- Q.2961.5, 8.2
  { commonIEInfo    CommonIEInfo,
        contents            CDVT-contents
  }

CDVT-contents ::= OCTET STRING (SIZE (3..18)) -- Q.2961.5, 8.2

AltATMTrfcDscrptrIE ::= CHOICE  -- EN 301 443-1 subclause 4.5.6, EN 301 067-1 subclause 8.2.1, EN
301 068
  {     send        [1]  SndATMDscrptrIE,
        receive     [2]  RcvATMDscrptrIE
  }

MinATMTrfcDscrptorIE ::= CHOICE  -- EN 301 443-1 subclause 4.5.6, EN 301 067-1 subclause 8.2.1, EN
301 068
  {     send        [1]  SndATMDscrptrIE,
        receive     [2]  RcvMinATMDscrptrIE
  }

RcvMinATMDscrptrIE ::= SEQUENCE
  { commonIEInfo    CommonIEInfo,
        contents            SET OF Rates
  }

CommonIEInfo ::= SEQUENCE  --EN 301 005-4, Annex E
 {  iEType              IEType,
    iECompatInd         IECompatInd,
    iELength            IELength
 }

IEType ::= OCTET STRING (SIZE (1)) -- Table 53, EN 301 217-1
```

```
IECompatInd ::= OCTET STRING (SIZE (1))

IELength ::= OCTET STRING (SIZE (2))  -- EN 301 005-4, Annex E

ExtBitLast ::= BIT STRING (SIZE (1)) --Always defaulted to '1'B (last octet in group), EN 301 005-4,
Annex E

CompatFlag ::= BIT STRING (SIZE(1)) --Table 35, EN 301 005-1

IEActInd ::= BIT STRING (SIZE (3)) --Table 36, EN 301 005-1

 -- definition of BBCC messages

CommonMsgInfo ::= SEQUENCE  --EN 301 005-4, Annex E
  {     protDiscr           ProtDiscr, --DEFAULT '49'H,
        transId             TransId,
        msgType             MsgType,
        msgCompatInd        MsgCompatInd,
        msgLength           MsgLength
  }

Alloc ::= SEQUENCE      -- En 301 217-1, Table 23
  {commonMsgInfo                        CommonMsgInfo,
    connRefNoIE                         ConnRefNoIE,
    aTMTrfcDscrptrIE                    ATMTrfcDscrptrIE,
    brdbndBcapIE                        BrdbndBcapIE,
    qoSParamsIE                         QoSParamsIE,
    usrPortConnIdIE                     UsrPortConnIdIE,
    srvcPortConnIdIE                    SrvcPortConnIdIE,
    altUsrPortVPCIIE            [1]  AltUsrPortVPCIIE       OPTIONAL,
    altSrvcPortVPCIIE           [2]  AltSrvcPortVPCIIE      OPTIONAL,
    branchIdIE                  [3]  BranchIdIE             OPTIONAL,
    aBRSetupParamsIE            [4]  ABRSetupParamsIE       OPTIONAL,
    endEndTrnstDlayIE           [5]  EndEndTrnstDlayIE      OPTIONAL,
    cDVTDscrptrIE               [6]  CDVTDscrptrIE          OPTIONAL,
    oAMTrfcDscrptrIE            [7]  OAMTrfcDscrptrIE       OPTIONAL,
    altATMTrfcDscrptrIE         [8]  AltATMTrfcDscrptrIE    OPTIONAL,
    minATMTrfcDscrptorIE        [9]  MinATMTrfcDscrptorIE   OPTIONAL
  }



AllocAcc ::= SEQUENCE       -- En 301 217-1, Table 24
  {commonMsgInfo                        CommonMsgInfo,
    aTMTrfcDscrptrIE            [1]     ATMTrfcDscrptrIE    OPTIONAL,
--  usrPortConnIdIE                     UsrPortConnIdIE     OPTIONAL,
--  srvcPortConnIdIE                    SrvcPortConnIdIE    OPTIONAL,
    branchIdIE                  [2]     BranchIdIE          OPTIONAL,
--  aBRSetupParamsIE                    ABRSetupParamsIE    OPTIONAL,
--  endEndTrnstDlayIE                   EndEndTrnstDlayIE   OPTIONAL,
--  cDVTDscrptrIE                       CDVTDscrptrIE       OPTIONAL,
--  oAMTrfcDscrptrIE                    OAMTrfcDscrptrIE    OPTIONAL,
    altATMTrfcDscrptrIE         [3]     AltATMTrfcDscrptrIE OPTIONAL,
    minATMTrfcDscrptorIE        [4]     MinATMTrfcDscrptorIE OPTIONAL--,
--  autoCongLvlIE                       AutoCongLvlIE       OPTIONAL
  }

AllocRej ::= SEQUENCE       -- En 301 217-1, Table 25
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
--  autoCongLvlIE       AutoCongLvlIE   OPTIONAL
  }

AllocComp ::= SEQUENCE      -- En 301 217-1, Table 26
  {commonMsgInfo                CommonMsgInfo,
    connRefNoIE                 ConnRefNoIE,
    aTMTrfcDscrptrIE        [1]  ATMTrfcDscrptrIE       OPTIONAL,
    usrPortConnIdIE         [2]  UsrPortConnIdIE        OPTIONAL,
    aBRSetupParamsIE        [3]  ABRSetupParamsIE       OPTIONAL,
    cDVTDscrptrIE           [4]  CDVTDscrptrIE          OPTIONAL
  }

AllocCompAcc ::= SEQUENCE   -- EN 301 217-1, 14.3.2.5
  {commonMsgInfo    CommonMsgInfo
  }

AllocCompRej ::= SEQUENCE   -- En 301 217-1, Table 27
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
  }

Dealloc ::= SEQUENCE        -- En 301 217-1, Table 28
```

```
  { commonMsgInfo       CommonMsgInfo,
    connRefNoListIE     ConnRefNoListIE
  }

DeallocAcc ::= SEQUENCE     -- En 301 217-1, Table 29
  {commonMsgInfo        CommonMsgInfo,
    autoCongLvlIE       AutoCongLvlIE   OPTIONAL
  }

BbccReset ::= SEQUENCE      -- En 301 217-1, Table 30
  {commonMsgInfo                CommonMsgInfo,
    usrPortConnIdIE         [1] UsrPortConnIdIE         OPTIONAL,
    srvcPortConnIdIE        [2] SrvcPortConnIdIE        OPTIONAL
  }

BbccResetAcc ::= SEQUENCE   -- EN 301 217-1, 14.3.3.2
  {commonMsgInfo           CommonMsgInfo
  }

BbccResetRej ::= SEQUENCE   -- En 301 217-1, Table 31
  {commonMsgInfo        CommonMsgInfo,
     rejCauseIE         RejCauseIE
  }

BbccPresync ::= SEQUENCE    -- En 301 217-1, Table 32
  { commonMsgInfo             CommonMsgInfo,
    usrPortConnIdIE         [1] UsrPortConnIdIE OPTIONAL,
    srvcPortConnIdIE        [2] SrvcPortConnIdIE    OPTIONAL
  }

BbccPresyncAcc ::= SEQUENCE -- EN 301 217-1, 14.3.3.5
  {commonMsgInfo           CommonMsgInfo
  }

BbccPresyncRej ::= SEQUENCE     -- En 301 217-1, Table 33
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
  }

AnFault ::= SEQUENCE        -- En 301 217-1, Table 34
  {commonMsgInfo              CommonMsgInfo,
    connRefNoIE             [1]  ConnRefNoIE        OPTIONAL,
    branchIdIE              [2]  BranchIdIE         OPTIONAL,
    usrPortConnIdIE         [3]  UsrPortConnIdIE    OPTIONAL,
    srvcPortConnIdIE        [4]  SrvcPortConnIdIE   OPTIONAL
  }

AnFaultAcc ::= SEQUENCE     -- EN 301 217-1, 14.3.3.8
  {commonMsgInfo        CommonMsgInfo
  }

ProtocolError ::= SEQUENCE  -- En 301 217-1, Table 35
  {commonMsgInfo        CommonMsgInfo,
    protErrCauseIE      ProtErrCauseIE
  }

Modify ::= SEQUENCE     -- En 301 217-1, Table 36
  {commonMsgInfo                        CommonMsgInfo,
    connRefNoIE                         ConnRefNoIE,
    aTMTrfcDscrptrIE                    ATMTrfcDscrptrIE,
    altATMTrfcDscrptrIE [1]  AltATMTrfcDscrptrIE        OPTIONAL
--  minATMTrfcDscrptorIE            MinATMTrfcDscrptorIE    OPTIONAL
  }

ModifyAcc ::= SEQUENCE      -- En 301 217-1, Table 37
  {commonMsgInfo                        CommonMsgInfo,
    aTMTrfcDscrptrIE            [1]  ATMTrfcDscrptrIE       OPTIONAL,
    altATMTrfcDscrptrIE         [2]  AltATMTrfcDscrptrIE    OPTIONAL,
    minATMTrfcDscrptorIE        [3]  MinATMTrfcDscrptorIE   OPTIONAL --,
--  autoCongLvlIE               [4]  AutoCongLvlIE          OPTIONAL
  }

ModifyRej ::= SEQUENCE      -- En 301 217-1, Table 38
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE --,
--  autoCongLvlIE       AutoCongLvlIE       OPTIONAL
  }

ModifyComp ::= SEQUENCE     -- En 301 217-1, Table 39
  {commonMsgInfo                CommonMsgInfo,
connRefNoIE             ConnRefNoIE,
    aTMTrfcDscrptrIE            [1]  ATMTrfcDscrptrIE   OPTIONAL
  }
```

```
ModifyCompAcc ::= SEQUENCE  -- EN 301 217-1, 14.3.4.5
  {commonMsgInfo        CommonMsgInfo
  }

ModifyCompRej ::= SEQUENCE  -- En 301 217-1, Table 40
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
  }

ModifyAbort ::= SEQUENCE    -- En 301 217-1, Table 41
  {commonMsgInfo        CommonMsgInfo,
    connRefNoIE         ConnRefNoIE
  }

ModifyAbortAcc ::= SEQUENCE -- EN 301 217-1, 14.3.4.8
  {commonMsgInfo        CommonMsgInfo
  }

ModifyAbortRej ::= SEQUENCE     -- En 301 217-1, Table 41
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
  }

AddBranch ::= SEQUENCE      -- En 301 217-1, Table 43
  {commonMsgInfo        CommonMsgInfo,
    connRefNoIE         ConnRefNoIE,
    branchIdIE          BranchIdIE,
    usrPortConnIdIE UsrPortConnIdIE
--  altUsrPortVPCIIE    AltUsrPortVPCIIE        OPTIONAL
  }

AddBranchAcc  ::= SEQUENCE  -- En 301 217-1, Table 44
  {commonMsgInfo        CommonMsgInfo
--  usrPortConnIdIE UsrPortConnIdIE OPTIONAL,
--  autoCongLvlIE       AutoCongLvlIE   OPTIONAL
  }

AddBranchRej  ::= SEQUENCE  -- En 301 217-1, Table 45
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
--  autoCongLvlIE       AutoCongLvlIE   OPTIONAL
  }

UpdateBranch ::= SEQUENCE   -- En 301 217-1, Table 46
  {commonMsgInfo        CommonMsgInfo,
    connRefNoIE         ConnRefNoIE,
    branchIdIE          BranchIdIE,
    usrPortConnIdIE UsrPortConnIdIE
  }

UpdateBranchAcc ::= SEQUENCE    -- EN 301 217-1, 14.3.5.5
  {commonMsgInfo    CommonMsgInfo
  }

UpdateBranchRej ::= SEQUENCE    -- En 301 217-1, Table 47
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
  }

DropBranch ::= SEQUENCE     -- En 301 217-1, Table 48
  {commonMsgInfo        CommonMsgInfo,
    connRefNoIE         ConnRefNoIE,
    branchIdListIE      BranchIdListIE
  }

DropBranchAcc ::= SEQUENCE  -- En 301 217-1, Table 49
  {commonMsgInfo        CommonMsgInfo
--  autoCongLvlIE       AutoCongLvlIE   OPTIONAL
  }

DropBranchRej ::= SEQUENCE  -- En 301 217-1, Table 50
  {commonMsgInfo        CommonMsgInfo,
    rejCauseIE          RejCauseIE
--  autoCongLvlIE       AutoCongLvlIE   OPTIONAL
  }

UnknownPDU ::= SEQUENCE
  {commonMsgInfo                CommonMsgInfo,
    usrPortConnIdIE         [1]  UsrPortConnIdIE    OPTIONAL,
    srvcPortConnIdIE        [2]  SrvcPortConnIdIE   OPTIONAL
  }
```

```
TruncInfoBbccReset ::= SEQUENCE
  {truncCommonMsgInfo              TruncCommonMsgInfo,
    usrPortConnIdIE             [1]  UsrPortConnIdIE        OPTIONAL,
    srvcPortConnIdIE            [2]  SrvcPortConnIdIE       OPTIONAL
  }

TruncInfoAnFault ::= SEQUENCE
  {truncCommonMsgInfo       [1]  TruncCommonMsgInfo,
    connRefNoIE             [2]  ConnRefNoIE        OPTIONAL,
    branchIdIE              [3]  BranchIdIE         OPTIONAL,
    usrPortConnIdIE         [4]  UsrPortConnIdIE    OPTIONAL,
    srvcPortConnIdIE        [5]  SrvcPortConnIdIE   OPTIONAL
  }

TruncCommonMsgInfo ::= SEQUENCE
  {     protDiscr           ProtDiscr, --DEFAULT '49'H,
        transId             TransId,
        msgType             MsgType,
        msgCompatInd        MsgCompatInd,
        truncMsgLength  OCTET STRING (SIZE (1))
  }

BbccResetMissingMndtryIE ::= SEQUENCE
  {commonMsgInfo        CommonMsgInfo
  }

BbccResetXtraUnkIE ::= SEQUENCE
  {commonMsgInfo        CommonMsgInfo,
    srvcPortConnIdIE    SrvcPortConnIdIE,
    unknownIE               UnknownIE
  }


BbccResetXtraUnexpIE ::= SEQUENCE
  {commonMsgInfo        CommonMsgInfo,
    connRefNoIE         ConnRefNoIE,
    srvcPortConnIdIE    SrvcPortConnIdIE
  }

AnFaultMissingMndtryIE ::= SEQUENCE
  {commonMsgInfo        CommonMsgInfo
  }

AnFaultXtraUnkIE ::= SEQUENCE
  {commonMsgInfo        CommonMsgInfo,
    usrPortConnIdIE UsrPortConnIdIE,
    unknownIE               UnknownIE
  }

AnFaultXtraUnexpIE ::= SEQUENCE
  {commonMsgInfo        CommonMsgInfo,
    usrPortConnIdIE UsrPortConnIdIE,
    rejCauseIE          RejCauseIE
  }

UnknownIE ::= SEQUENCE
  {commonIEInfo     CommonIEInfo,
    contents                OCTET STRING (SIZE (1))
  }


Rate-Id ::=  -- EN 301 443-1 subclause 4.5.6, EN 301 067-1 subclause 8.2.1, EN 301 068
BIT STRING ( '10000010'B | -- forward peak cell rate (CLP = 0)
             '10000011'B | -- backward peak cell rate (CLP = 0)
             '10000100'B | -- forward peak cell rate (CLP = 0 + 1)
             '10000101'B | -- backward peak cell rate (CLP = 0 + 1)
             '10001000'B | -- forward sustainable cell rate (CLP = 0)
             '10001001'B | -- backward sustainable cell rate (CLP = 0)
             '10010000'B | -- forward sustainable cell rate (CLP = 0 + 1)
             '10010001'B | -- backward sustainable cell rate (CLP = 0 + 1)
             '10100000'B | -- forward maximum burst size (CLP = 0)
             '10100001'B | -- backward maximum burst size (CLP = 0)
             '10110000'B | -- forward maximum burst size (CLP = 0 + 1)
             '10110001'B | -- backward maximum burst size (CLP = 0 + 1)
             '10010010'B | -- forward ABR minimum cell rate (CLP = 0 + 1)
             '10010011'B | -- backward ABR minmum cell rate (CLP = 0 + 1)
             '11000000'B | -- forward RM peak cell rate
             '11000001'B   -- backward RM peak cell rate
           )    -- Possible identifiers for the traffic rates of the ATM traffic descriptor
information

allocMsgType                MsgType ::= '40'H
allocAccMsgType             MsgType ::= '41'H
```

```
allocRejMsgType             MsgType ::= '42'H
allocCompMsgType            MsgType ::= '43'H
allocCompAccMsgType         MsgType ::= '44'H
allocCompRejMsgType         MsgType ::= '45'H
deallocMsgType              MsgType ::= '46'H
deallocAccMsgType           MsgType ::= '47'H
bbccResetMsgType            MsgType ::= '48'H
bbccResetAccMsgType         MsgType ::= '49'H
bbccResetRejMsgType         MsgType ::= '4A'H
bbccPresyncMsgType          MsgType ::= '4B'H
bbccPresyncAccMsgType       MsgType ::= '4C'H
bbccPresyncRejMsgType       MsgType ::= '4D'H
anFaultMsgType              MsgType ::= '4E'H
anFaultAccMsgType           MsgType ::= '4F'H
protocolErrorMsgType        MsgType ::= '50'H
modifyMsgType               MsgType ::= '51'H
modifyAccMsgType            MsgType ::= '52'H
modifyRejMsgType            MsgType ::= '53'H
modifyCompMsgType           MsgType ::= '54'H
modifyCompAccMsgType        MsgType ::= '55'H
modifyCompRejMsgType        MsgType ::= '56'H
modifyAbortMsgType          MsgType ::= '57'H
modifyAbortAccMsgType       MsgType ::= '58'H
modifyAbortRejMsgType       MsgType ::= '59'H
addBranchMsgType            MsgType ::= '5A'H
addBranchAccMsgType         MsgType ::= '5B'H
addBranchRejMsgType         MsgType ::= '5C'H
updateBranchMsgType         MsgType ::= '5D'H
updateBranchAccMsgType      MsgType ::= '5E'H
updateBranchRejMsgType      MsgType ::= '5F'H
dropBranchMsgType           MsgType ::= '60'H
dropBranchAccMsgType        MsgType ::= '61'H
dropBranchRejMsgType        MsgType ::= '62'H

flag1 TransIdFlag ::= '1'B

END
```

Annex F (informative): Extended SDL process diagrams for BBCC protocol

The Extended SDL process diagrams for BBCC protocol are contained in archive en_30121704v010101c0.ZIP which accompanies the present document.

The Extended SDL process is based on and extends the diagrams contained in normative annex A of EN 301 217-1 [1] base document, by providing complete PDU definitions as defined in ASN.1 definitions.

History

Document history			
V1.1.1	July 2000	Public Enquiry	PE 20001103: 2000-07-05 to 2000-11-03