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**Signalling Protocols and Switching (SPS);
V interfaces at the digital Local Exchange (LE);
V5.2 interface for the support of Access Network (AN);
Part 8: Abstract Test Suite (ATS) and partial Protocol
Implementation eXtra Information for Testing (PIXIT) proforma
specification for the data link layer**

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

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Foreword

This draft European Telecommunication Standard (ETS) has been produced by the Signalling Protocol and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Public Enquiry phase of the ETSI standards approval procedure.

This ETS is part 8 of a multi-part standard covering the V5.2 interface as described below:

- Part 1: "V5.2 interface specification";
- Part 2: "Protocol Implementation Conformance Statement (PICS) proforma";
- Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification for the network layer (AN side)";
- Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network layer (AN side)";
- Part 5: "TSS&TP specification for the network layer (LE side)";
- Part 6: "ATS and partial PIXIT proforma specification for the network layer (LE side)";
- Part 7: "TSS&TP specification for the data link layer";
- Part 8: "ATS and partial PIXIT proforma specification for the data link layer";**
- Part 9: "Test specifications for the physical layer".

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

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1 Scope

This eighth part of ETS 300 347 contains the Abstract Test Suite (ATS) as well as the Abstract Test Method (ATM) and the partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the Data Link Layer (DLL) of the V5.2 interface.

The objective of this ETS is to provide an ATS containing conformance tests which give a high probability of inter-operability of an Access Network (AN) and a Local Exchange (LE) from different manufacturers over the V5.2 interface.

ISO/IEC 9646-1 [7] and ISO/IEC 9646-2 [8] are used as the basis for the test methodology. The ATS is defined using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [9].

The ATS in annex A describes a set of Test Cases (TCs) which are based on the Test Purposes (TPs) specified in ETS 300 347-7 [6] (which is an extension of ETS 300 324-7 [2]). The TCs provide the implementation of the TPs and can be converted into an executable test suite by using available TTCN translators and the corresponding tools.

Annex B provides the partial PIXIT proforma.

This ETS needs to be used in conjunction with ETS 300 324-8 [3]. To create a complete V5.2 ATS, the V5.1 ATS contained in ETS 300 324-8 [3] and the V5.2 ATS additions contained in annex A of this ETS need to be merged. Annex C gives assistance with this procedure.

Annex D lists the informative references.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 324-1 (1994): "Signalling Protocols and Switching (SPS), V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 1: V5.1 interface specification".
- [2] ETS 300 324-7: "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 7: Test Suite Structure and Test Purposes (TSS&TP) specification for the data link layer".
- [3] ETS 300 324-8: "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 8: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the data link layer".
- [4] ETS 300 347-1 (1994): "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.2 interface for the support of Access Network (AN); Part 1: V5.2 interface specification".
- [5] ETS 300 347-2 (1994): "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.2 interface for the support of Access Network (AN); Part 2: Protocol Implementation Conformance Statement (PICS) proforma".
- [6] ETS 300 347-7: "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.2 interface for the support of Access Network (AN); Part 7: Test Suite Structure and Test Purposes (TSS&TP) specification for the data link layer".

- [7] ISO/IEC 9646-1: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [8] ISO/IEC 9646-2: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".
- [9] ISO/IEC 9646-3: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".
- [10] ISO/IEC 9646-5: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, all definitions given in ETS 300 324-8 [3] apply.

3.2 Abbreviations

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

AN	Access Network
ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability test
DLL	Data Link Layer
FSM	Finite State Machine
ID	Interface identifier
ISDN	Integrated Services Digital Network
IT	basic Interconnection Test
IUT	Implementation Under Test
LAPV5	Link Access Protocol for V5 interface
LAPV5-DL	LAPV5 Data Link sub layer
LAPV5-EF	LAPV5 Envelope Function sub layer
LE	Local Exchange
LT1	Lower Tester 1
NWK	Network Layer
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PHL	Physical Layer
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtran Information for Testing
PSAP	PHL Service Access Point
PSTN	Public Switched Telephone Network
RX	Receiver Condition
SAP	Service Access Point
SAPI	Service Access Point Identifier
SUT	System Under Test
TC	Test Case
TEI	Terminal Endpoint Identifier
TI	Timer

TP	Test Purpose
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
TX	Transmitter Condition
UT	Upper Tester
V5DLaddr	V5 Data Link address
V5DLL	V5 Data Link Layer

4 Abstract test method

This clause describes the Abstract Test Method (ATM) and the Point of Control and Observation (PCO) used to test the DLL of the V5.2 protocol.

4.1 ATM

Principally, the remote test method is used for V5 DLL conformance testing. Certain DLL TPs need also part of the NWK functions (e.g. I frame transmission). Therefore, the embedded variant of the remote test method is applied.

4.2 DLL protocol testing

The V5 implementations do not offer a direct access to the upper service boundary. The remote test method was chosen because any co-ordination procedures can only be expressed in an informal way.

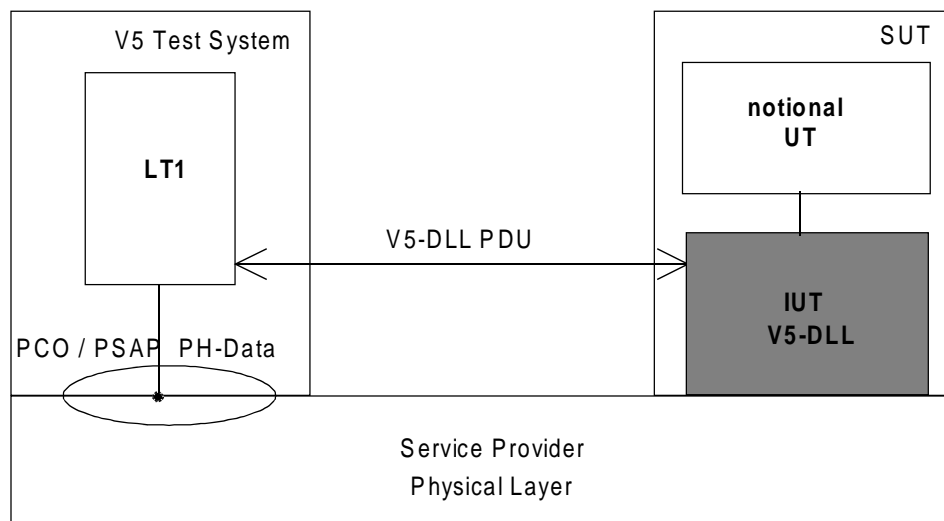


Figure 1: Remote test method applied to the V5.1 DLL testing

- LT1:** A Lower Tester (LT1) is located in a remote V5 test system. It controls and observes the behaviours of the IUT.
- PCO:** The PCO for DLL testing is located on the PSAP. All test events at the PCO are specified in terms of PH-Data ASPs and DLL PDUs. A single PCO is defined for DLL testing in order to exchange messages of the LAPV5-EF sub layer as well as of the LAPV5-DL sub layer.
- Notional UT:** The notional UT includes the NWK and System Management functions.
- V5-DLL:** V5-DLL includes LAPV5-EF, mapping function and LAPV5-DL.
- AN test:** To test the LAPV5-EF protocol, an ISDN terminal shall be connected to the relevant user port.

4.3 Execution of test cases

4.3.1 AN-LE testing

Regarding the DLL protocol of V5.2, the V5.2 interface is almost symmetrical, except that the Frame Relay function is only implemented in the AN. There are two protocol subjects which have to be adapted for LE testing, the message sequence of a generic call to the ISDN entity and the handling of the CR bit.

The generic call to the ISDN entity is stopped after having received from the IUT an UA response frame as a response to a previously sent SABME command frame. Until the ISDN link initialization the V5.2 protocol is symmetrical as only a point-to-point connection over a single data link is established (fixed TEI).

The problem of the CR bit handling is solved in the ATS. The CR bit is defined as a test suite parameter which allows to invert the CR bit for LE testing. Table 1 documents this approach.

Table 1: AN-LE parameters

	AN	LE
TSPX_AN	TRUE	FALSE
CR_0	'0'B	'1'B
CR_1	'1'B	'0'B

4.3.2 Handling of error indications

During the execution of the DLL ATS many MDL-ERROR-IND will be sent to the system management due to the invalid and inopportune test cases. It is up to the IUT supplier to take the necessary precautions to avoid any impact on the test result.

Some tests use NWK procedures to test DLL functions, it is not always possible to handle the NWK properly. The effects of such faulty NWK messages and procedures are out of the scope of the DLL ATS. It is up to the IUT supplier to take the necessary precautions to avoid any impact on the test result.

4.3.3 Link control FSM - Physical Layer connection

During the Link identification procedure (see ETS 300 347-1 [4], subclause 16.2.4.3.5) the Link control FSM needs to communicate with the Physical layer. This fact has a direct impact on the execution of the Link identification procedure. As it is not possible to make requirements on the internal behaviour of the LT1, it is required that the LT1 implementation takes care about the Link control FSM - Physical Layer communication.

4.3.4 Test case execution sequence

There is no restriction concerning the execution sequence of the DLL test cases, but to facilitate the analyse of the test results the following test sequence should be applied:

Protocol groups: LAPV5-EF \Rightarrow LAPV5-DL.
Test groups: IT \Rightarrow CA \Rightarrow TI \Rightarrow BV \Rightarrow BO \Rightarrow BI.

5 Untestable test purposes

This clause contains lists of TPs which are not implemented in the ATS due to the chosen ATM or other restrictions.

5.1 List of unimplemented TPs

The following TPs are not implemented because they can be only tested under load conditions. It is assumed that a possible target conformance test system will not have the capacity to generate load.

Table 2: Unimplemeted TPs

Test Purpose ID	Reference to ETS 300 324-7 [2]
TP23S5003	Refer to subclause 5.3.3.2.1
TP23S7014	Refer to subclause 5.3.3.3.1

6 Abstract test suite conventions

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 should be applied.

The ATS conventions contain two clauses, the naming conventions and the implementation conventions. The naming conventions describe the structure of the naming of all ATS elements. The implementation conventions describe the functional structure of the ATS.

NOTE: To define the ATS, the guidelines given in ETS 300 406 and ETR 141 were considered.

6.1 Naming conventions

6.1.1 Declaration part

The ID names of the following definitions are written in lowercase:

- structured type definitions;
- ASP type definitions;
- PDU type definitions.

The ID names of the following definitions are written in uppercase:

- Test Suite Parameter Declarations;
- Test Case Selection Expression Definitions;
- Test Suite Constant Declarations;
- Test Case Variable Declarations.

ID names of PDU and structured types commence with a protocol identifier to define which protocol they are belonging to. The following identifiers are used:

- data link layer: dl e.g. dl_rej_cmd;
- envelop function: ef e.g. ef_info_long;
- network layer: nwk e.g. nwk_info.

ID names of PDU and structured types which contain invalid data commence with "bi" followed by a protocol identifier

EXAMPLE: bi_dl_address_field_err.

Complete names as defined in the specifications are used for ID names of declarations.

EXAMPLE: dl_address_field.

Test suite parameter ID names commence with TSP:

- PICS are identified by adding the letter "C": TSPC_;
- PIXIT are identified by adding the letter "X": TSPX_.

If the test suite parameter is representing a system parameter or value, only the parameter name is used.

EXAMPLE: CR_1.

Test suite operations commence with TSO.

EXAMPLE: TSO_FCS.

Test suite constant ID names commence with TSC.

EXAMPLE: TSC_EF_ADDRESS_CTRL.

If the constant is representing a system parameter or value, only the parameter name is used.

EXAMPLE: N200, P_1, etc.

ID names of Timers commence with T. The same names as in the specification are used.

EXAMPLE: T01

6.1.2 Constraint part

Constraint names commence with uppercase. The remaining part of the ID name is written in lowercase.

ID names of elements concerning the same subject have equivalent names in the declaration and the constraint part:

Declaration part: dl_rej_cmd;
Constraint part: DI_rej_cmd.

If formal parameter lists are used, the variable names are written in lowercase. The variable name is the same as the name of the element it is representing.

6.1.3 Dynamic part

6.1.3.1 Test cases

The identifier of the TCs is built the same way as for the TPs described in DE/SPS-3003.3-2 [3], subclause 5.1.1, with the exception that "TP" is replaced by "TC".

TP identifier: TP23S7009
TC identifier: TC23S7009

6.1.3.2 Test steps

In test cases, test steps as well as local trees are used. To allow an easy distinguishing of them the following naming is applied:

local tree: LTS_[local_tree_name];
test step: STEP_[test step_name].

6.1.3.3 General aspects

All verdict assignments are labelled. To allow an exact identification in which table the verdict was assigned, the following name convention is applied:

B	test Body
CS	status verification test steps (Check Status)
D	Default
E	Error handling test steps
PO	POstamble
PR	PReamble
S	test Step

Combinations of labels are also possible.

EXAMPLE: DPR --> label which is used in a default for preambles.

6.1.4 ATS abbreviations

These abbreviations are used to shorten identifier names:

addr	address
act	activate
acc	access
ack	acknowledgement
bcc	broadcast channel control
cfe	control function element
cfi	control function identifier
com	common
ctrl	control
dl	data link
err	error
fcs	frame check sequence
func	function
ind	indication
lc	link control
lcf	link control function
lcfе	link control function element
mod	modified
pr	protection protocol
req	request
rsp	response
vid	variant & interface ID

6.2 Implementation conventions

6.2.1 Declaration part

The comment line of single element TTCN tables (e.g. test suite constants) is used to give a reference where the format and content of the element is described in the relevant protocol specifications. Any particularity of the element format or content is described in the comment line.

The comment line in the header of multi element TTCN tables (e.g. ASPs) is used to reference to the protocol specification. The detailed comments are used to describe any particularity of the table.

In the ASP and PDU declarations, the comments column is used to identify if an element is mandatory or optional.

m: mandatory;
o: optional.

In the ASP and PDU declarations the comments column is further used to give information about the element value, in particular if the element contains a fixed spare value.

In tables where structure types are used the information element and the relevant structured type have always the same name, that allows to have the same structure as in the protocol standards is used to document the relation between information elements in a table and their specific description in an other section of the protocol standard.

6.2.2 Constraint part

Generally the base constraint is the constraint of an ASP or a PDU which is most often used. The more particular modified constraints derive from these base constraints, that allows to identify easily the particularity of a modified constraint compared to the base constraint. The base constraint contains the basic formal parameter list of the base constraint and all derived modified constraints.

The DLL ASPs and PDUs are defined in a way that all relevant elements are parametrized. That improves the transparency of the constraints in the dynamic part, as all values which are relevant for the test are always present.

Modified constraints have the same parameter list as the base constraint. Not used elements of the parameter list are set to a default value "ANY" in the dynamic part. The number of base constraints is reduced to a minimum.

The NWK PDUs are specific. The parametrizing is reduced to a minimum. The name of the PDUs describes always their function.

The following NWK PDUs are used in a particular way:

EF_info_max_EF_length: The NWK PDU is used as I frame content to test that the IUT accepts the maximum length of EF frames.

EF_info_max_EF_length_plus: The NWK PDU is used as I frame contents to test that the IUT reacts correct on receipt of a frame whose length exceeds the maximum EF frame length.

NWK_com_ctrl_ack: Besides its use as common control ack message this NWK PDU is also used as I frame content to test information transfer procedures where no NWK response is required. The advantage of the common control ack message is that the NWK entity discards the message without any error indications if the message is not expected.

NWK_com_ctrl_vid: Besides its use as common control (variant & interface ID) message this NWK PDU is also used to test I frame procedures where the first I frame has to be sent from the IUT. The advantage of sending a common control (variant & interface ID) message is that the IUT sends a common control ack message but the variant & interface ID is ignored from the relevant NWK entity.

NWK_info: The NWK PDU is used as I frame content in tests where the IUT shall discard the I frame and thus not analyse the NWK data.

NWK_info_any: The NWK PDU is used to receive any kind of NWK data.

NWK_info_N201: The NWK PDU is used as I frame content to test that the DL control entity accepts frames whose length is up to N201 octets.

NWK_info_N201_plus: The NWK PDU is used as I frame contents to test that the DL control entity reacts correct on receipt of a frame whose length exceeds N201 octets.

Modified constraints have the same parameter list as the base constraint. Not used elements of the parameter list may have any value in the dynamic part, the unused parameters have no impact on the constraint. The number of base constraints is reduced to a minimum.

The Comment line of a constraint contains always the reference to the used specifications. The detailed comments sector is used to describe the use of the constraint, particularities of the constraint and the use of the parameters of the formal parameter list.

6.2.3 Dynamic part

Some test cases need a particular initialisation of the IUT environment conditions to run the actual test, e.g. I frame handling with embedded NWK data. Such message sequence can be quite complicated and long. In cases where a Local Test Step (LTS) facilitates the test case structure, the preamble and the condition setting are described in a LTS called **LTS_pre_step**. All LTS_pre_steps are described in the detailed comment part of the TTCN table.

Some test cases need after the actual test a particular re-initialization of the IUT, e.g. after having used NWK data in I frames, the NWK entity has to be re-initialised. Such message sequence can be quite complicated and long. In cases where a Local Test Step (LTS) facilitates the test case structure, the postamble and the re-initialization are described in a LTS called **LTS_post_step**. All LTS_post_steps are described in the detailed comment part of the TTCN table.

All events which are defined as a conformance requirements by the TP, cause a preliminary verdict PASS if the requirement is met.

All invalid events are handled in the default tree. FAIL verdicts are only assigned in the default tree. The default tree contains the error handling procedure for each specific event which is handled in the default tree.

The preamble, the test body and the postamble have different defaults, what allows a specific verdict handling, e.g. only INCONC verdicts are assigned in the preamble.

Test steps do not contain a default. That allows to apply them with no restrictions regarding the error handling.

All verdict assignments are labelled. According to ISO/IEC 9646-3 [9], subclause E.2, labels should be written to the conformance log. This allows to identify where the test failed. To allow an exact identification in which table the verdict was assigned, the naming convention as described in subclause 6.1.3.3 is applied.

The labels of the same type are numbered sequentially if they are in the same TC, test step or default.

Tps which only reference to an other TP, e.g. BV Tps which were already defined as CA Tps, are only implemented ones, thus the numbering of the test cases is not always continues.

DLL Implementation:

- 1) the ATS rebuilds the LAPV5 functions. Therefore the state variables V(S), V(R) and V(A) are implemented and used according to their functions described in ETS 300 324-1 [1];
- 2) the CR bit of the link address field is implemented as a PIXIT, to allow to use the test suite for AN testing as well as for LE testing;
- 3) implicit send events are implemented according to ISO/IEC 9646-3 [9], subclause 14.9.6.

Documentation:

The comment line of the test case or test step header contains a reference to the relevant protocol specification.

The comment column of the dynamic behaviour part is used to number the test events which are relevant for the particular test or test operation.

Based on the numbering in the comment column all for the test case relevant events are described in the detailed comments part of each TTCN table.

Test procedures which cover a conformance requirement and lead to a preliminary or final verdict assignment are described as follows in the detailed comments part:

Expected event: a specific receive event is expected.

Expected behaviour: no event or a timer expiry is expected.

Expected status: the IUT is expected to be in a particular status.

Annex A (normative): Abstract test suite for DLL testing

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [9].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the contents table. The ATS itself contains a Test Suite Overview Part which provides additional information and references.

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

The TTCN.GR representation of this ATS is contained in a Postscript file (DEP03478.PS) which can be found on the diskette which is attached to the last page of this ETS.

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

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (DEP03478.MP) which can be found on the diskette which is attached to the last page of this ETS.

NOTE: According to ISO/IEC 9646-3 [9], in case of a conflict in interpretation of the operational semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes precedence.

Annex B (normative): Partial PIXIT proforma

Notwithstanding the provisions of the copyright clause related to the text of this ETS, ETSI grants that users of this ETS may freely reproduce the PIXIT proforma in this annex so that it can be used for its intended purposes and may further publish the completed PIXIT.

B.1 Introduction

The PIXIT proforma are based on ISO/IEC 9646-5 [10], any additional information needed can be found in this ETS.

B.2 PIXIT proforma

B.2.1 Identification summary

PIXIT Number:
Test Laboratory Name:
Date of Issue:
Issued to:

B.2.2 Abstract test suite summary

Protocol Specification: ETS 300 347-1
Protocol to be tested: V5.2, data link layer
ATS Specification: ETS 300 347-8
Abstract Test Method: Remote test method, embedded variant

B.2.3 Test laboratory

Test Laboratory Identification:
Test Laboratory Manager:
Means of Testing:
SAP Address:

B.2.4 Client

Client Identification:
Client Test manager:
Test Facilities required:

B.2.5 SUT

Name:
Version:
SCS Number:
Machine configuration:
Operating System Identification:
IUT Identification:
PICS Reference for IUT:
Limitations of the SUT:
Environmental Conditions:

B.2.6 Protocol layer information

B.2.6.1 Protocol identification

Name: V5.2, data link layer
Version:
PICS References: ETS 300 347-2

B.2.6.2 IUT information

Table B.1: Addresses

Address name	Parameter type	Reference to ETS 300 324-1 [1]	Value
TSPX_EF_ADDR_ISDN	OCTETSTRING[2]	EF-address of the provisioned ISDN user port (subclause 9.2.1)	
TSPX_EF_ADDR_NOT_IMPLEMENTED	OCTETSTRING[2]	EF-address which is not implemented in the IUT (subclauses 9.2.5 and 9.1.9)	
TSPX_LC_LAYER3_ADDR	OCTETSTRING[2]	Link control layer 3 address (ETS 300 347-1 [4], subclause 16.3.2.1)	

Table B.2: Parameter values

Parameter name	Parameter type	Reference to ETS 300 324-1 [1]	Parameter value
CR_0	BITSTRING[1]	Depending whether ATS is used for AN or LE testing, the value is: AN: '0'B LE: '1'B	
CR_1	BITSTRING[1]	Depending whether ATS is used for AN or LE testing, the value is: AN: '0'B LE: '1'B	
TSPX_NWK_INTERFACE_ID	OCTETSTRING[3]	figure 40, table 57	
TSPX_NWK_VARIANT	OCTETSTRING[3]	figure 39, table 55	

Table B.3: Timer values

Timer name type	Reference to ETS 300 324-1 [1]	Timer range	Timer value
TSPX_TC2_max	table C.1	> TC2	

Table B.4: Procedural information

Procedural name	Explanation	Valid ?
TSPX_AN	The IUT to be tested is an Access Network (AN)	
TSPX_LE	The IUT to be tested is a Local Exchange (LE)	
TSPX_DL_PSTN_CTRL_IMPLEMENT	The implementation of the DLL for the PSTN entity and the Control protocol entity is identical	
TSPX_DL_BCC_CTRL_IMPLEMENT	The implementation of the DLL of the BCC entity and the Control protocol entity is identical	
TSPX_DL_LC_CTRL_IMPLEMENT	The implementation of the DLL of the Link Control entity and the Control protocol entity is identical	
TSPX_DL_PRTCTN_CTRL_IMPLEMENT	The implementation of the DLL of the Protection protocol entity and the Control protocol entity is identical	

Table B.5: Implicit send events for an AN IUT

PIXIT name	Message to be sent	Question	Description
TSPX_IMPLICIT_AN_ISDBA_FE202	I_cmd (ctrl_port_ctrl (unlock request, FE202, ISDN-BA port))	How can the sending of an I frame containing an ISDN-BA PORT CONTROL message (cfe: FE202) from the IUT to the LE be invoked?	

Table B.6: Implicit send events for a LE IUT

PIXIT name	Message to be sent	Question	Description
TSPX_IMPLICIT_LE_ISDBA_FE201	I_cmd (ctrl_port_ctrl (unlock request, FE201, ISDN-BA port))	How can the sending of an I frame containing an ISDN-BA PORT CONTROL message (cfe: FE201) from the IUT to the AN be invoked?	

Annex C (informative): Merging procedure of V5.1 ATS and V5.2 ATS additions

This annex describes how the V5.1 ATS specified in ETS 300 324-8 [3] and the V5.2 ATS additions specified in this ETS can be merged into a complete V5.2 ATS. The principle of this merging procedure will be similar for every TTCN software, however, the real procedure may vary.

Merging procedure:

- compare the V5.2 ATS additions with the V5.1 ATS and select in the V5.1 ATS those parts which have identical names to the V5.2 ATS additions;
- delete the identical named parts in the V5.1 ATS;
- merge the modified V5.1 ATS and the V5.2 ATS additions;
- parse the merged V5.2 ATS to verify the merging procedure.

Annex D (informative): Bibliography

- ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- ETR 141 (1994): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; The Tree and Tabular Combined Notation (TTCN) style guide".

History

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