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Advanced Testing Methods (ATM);
Vocabulary of terms used in communication protocols conformance testing (2001)

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Foreword

ETSI Technical Reports (ETRs) are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, or which is immature and not yet suitable for formal adoption as an ETS or I-ETS.

This ETR has been produced by the Advanced Testing Methods (ATM) Technical Committee of the European Telecommunications Standards Institute (ETSI).

> NOTE: This ETR is a separate, independent document and should not be confused with EWOS ETG 009 ("Conformance Testing - Vocabulary and Terminology").

An element of ETSI TC-ATM is to act as a catalyst for ETSI to adopt a common methodology for the development of Conformance Testing Standards within ETSI (or parts of ETSI standards dedicated to conformance testing).

ETSI TC-ATM wishes to explore innovative solutions for the long-term, and also for the present, by proposing harmonised approaches to the pressing requirements of developing test standards in various ETSI Technical Committees. This ETR aims to create a common terminology within ETSI in the area of protocol conformance testing. It is to be regarded as a base guide for terminology in the development of ETSI conformance testing standards. It is expected that the ETR will be revised periodically in order to take account of amended or additional terms.

ETSI TC-ATM advises TC and STC Chairmen, in their role of co-ordinators of standards development, to ensure that groups of experts working in the conformance testing field in their bodies are fully aware of the content of this ETR to allow consistency in the production of their standards and to avoid duplication and confusion.

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1   Scope

This document has been prepared by ETSI TC-ATM with the objective of creating a common terminology within ETSI in the area of protocol Conformance Testing.

According to a decision taken within the TC, the terms included in the Vocabulary have stable definitions within the Conformance Testing and Certification communities and in most cases have been extracted by publicly available standards and documents listed below:

(9646) =   ISO IS 9646 (CCITT X.290 Series of Recommendations): "OSI Conformance Testing Methodology and Framework. Part 1: General concepts".

(9646-5) =   ISO IS 9646: "OSI Conformance Testing Methodology and Framework. Part 5: Requirements on test laboratories and clients for the Conformance Assessment Process".

(GUIDE 2) =   ISO/IEC Guide 2, edition 1986: "General terms and their definitions concerning standardisation and related activities".

(EN 45011) =   European standard: "General criteria for certification bodies operating product certification".

(EN 45014) =   European standard: "General criteria for suppliers' declaration of conformity".

In a few cases, more than one definition for a term may be given in the reference documents. When significant, these are given together.

It should be noted that Conformance Testing is an evolving discipline where research and innovation will bring additional terms with their definitions. These will be progressively consolidated at the international level. ETSI-TC ATM maintains a working document on the subject from where new terms will be taken, when a stable definition will emerge, and included in future issues of this Vocabulary.

Finally, an appendix is provided with acronyms and abbreviations commonly used in the field of protocol Conformance Testing.

NOTE: *Order of insertion:*
           Strictly alphabetical;
           Special characters ()-" ignored as insignificant;
           Numbers lower in order than characters.

2 Vocabulary of terms

Abnormal (test case) termination
(9646) The term used to describe the result of execution of an abstract test case when it has been prematurely terminated by the test system.

Abstract test case
(9646) A complete and independent specification of the actions required to achieve a specific test purpose (or a specified combination of test purpose), defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state. This specification may involve one or more consecutive or concurrent connections.

> NOTE 1: The specification should be complete in the sense that it is sufficient to enable a test verdict to be assigned unambiguously to each potentially observable test outcome (i.e. sequence of test events).

> NOTE 2: The specification should be independent in the sense that it should be possible to execute the derived executable test case in isolation from other such test cases (i.e. the specification should always include the possibility of starting and finishing in the "idle" state.

Abstract test case error
(9646) A test case error resulting from an error in the abstract test case.

Abstract testing methodology
(9646) An approach to describing and categorizing Abstract Test Methods.

Abstract Test Method (ATM)
(9646) The description of how an IUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realisation of a Means of Testing, but will be in enough detail to enable tests to be specified for this test method.

Abstract test suite (ATS)
(9646) A test suite composed of abstract test cases.

Acceptance testing
Testing process on behalf of system customers and users, in order to meet client's specific requirements and additional options, and check implementation robustness and its successful appliance within the client's particular environment.

Accreditation
(GUIDE 2) Formal recognition that a testing laboratory is competent to carry out specific tests or specific types of tests.

Accreditation body
(GUIDE 2) Body that conducts and administers a laboratory accreditation system and grants accreditation to test laboratories.

Accreditation criteria
(GUIDE 2) Set of requirements that is used an accreditation body, to be fulfilled by a testing laboratory in order to be accredited.

Accredited laboratory test report
(GUIDE 2) Test report that includes a statement by the testing laboratory that it is accredited for the test reported and that the test has been performed in accordance with the conditions prescribed by the accreditation body.

Accreditation system
(GUIDE 2) System that has its own rules of procedure and management for carrying out laboratory accreditation.

Basic Interconnection Test (BIT)
(9646) A test of an IUT which has limited scope to determine whether or not there is sufficient conformance to the relevant protocol(s) for interconnection to be possible, without trying to perform thorough testing.

Behaviour test
(9646) A test to determine the extent to which one or more dynamic conformance requirements are met by the IUT.

Calibration (of test tool)
(GUIDE 2) The process of evaluating the behaviour of a test tool against the test specification.

Capability of an implementation
(9646) A set of functions in the relevant protocol(s) which is supported by the implementation.

Capability test
(9646) A test to verify the existence of one or more claimed capabilities of an IUT.

> NOTE: Capability testing involves checking all mandatory capabilities and those optional ones that are stated in the PICS as supported, but not checking those optional ones which are stated in the PICS as not supported by the IUT.

Certificate
(EN 45011) Document issued under rules of a certification system, indicating that adequate confidence (e.g. a harmonized test report) is provided that a duly identified product, process or service is in conformity with a specific standard or other normative document.

Certificate of competence
(EN 45011) Document issued under the rules of a certification system indicating that adequate confidence is provided that the named person is competent in performing specific services.

Certificate of conformity
(GUIDE 2) Document issued under the rules of a certification system, indicating that adequate confidence is provided that a duly identified product, process or service is in conformity with a specific standard or other normative document.

Certification arrangement
(GUIDE 2) cf. recognition arrangement.

Certification body
(EN 45011) Body that conducts certification of conformity.

Certification of conformity
(EN 45011) Action by a third party, demonstrating that adequate confidence is provided that a duly identified product, process or service is in conformity with a specific standard or other normative document.

Certification system
(EN 45011) System that has its rules of procedure and management for carrying out certification of conformity.

Client (of a test laboratory)
(9646) The organization that submits a system or implementation for conformance testing.

Client check-list
(9646-5) A record of test-related information supplied to the test laboratory by the client during the test preparation phase of the conformance assessment process.

Client test manager
(9646-5) The person identified by the client organisation as being responsible for all matters relating to the conformance testing of the IUT.

Comparability (of results)
(9646) Characteristics of conformance assessment processes, such that their execution on the same IUT, in different test environments, leads to the same overall summary of conformance for the specified IUT.

Comprehensive testing service
(9646) A service, offered to clients by a test laboratory, to perform the conformance assessment process for one or more OSI protocol(s), with a choice of test methods sufficient to make the service applicable to all real open systems that claim to implement the specified protocols.

Conformance
(GUIDE 2) Synonym: Conformity
Fulfilment by a product, process or service of all requirements claimed to be supported.

Conformance assessment process
(9646) The complete process of accomplishing all conformance testing activities necessary to enable the conformance of an implementation or a system to one or more OSI International Standards or CCITT Recommendations to be assessed.

(GUIDE 2) The complete process of accomplishing all conformance testing activities necessary to enable the conformance of an implementation of a system to one or more standards to be assessed.

Conformance log
(9646) A human-readable record of information produced as a result of a test campaign, which is sufficient to record the observed test outcomes and verify the assignment of test results (including test verdicts).

Conformance requirement
(GUIDE 2) Identification in a product specification of behaviour and/or minimal capabilities required by a product for it to conform to that specification.

See also Dynamic c.r., Static c.r.

Conformance resolution test
(9646) A non-standardised, possibly system-specific test to fulfil a test purpose for which a standardised abstract test case is not defined, in order to investigate the behaviour of an OSI protocol implementation with respect to particular conformance requirements.

Conformance statement
(GUIDE 2) See also system conformance statement.

> NOTE: Conformance requirement, PICS and system conformance statement are related but separate concepts.

Conformance testing
(9646) Testing the extent to which the IUT is a conforming implementation.

Conformance testing standard
(9646) The (multi-part) International Standard or CCITT Recommendation or draft thereof that contains a standardised ATS.

(Conformance) test suite
(9646) The complete set of test cases, possibly combined into nested test groups, that is needed to perform dynamic conformance testing for one or more OSI protocols.

> NOTE: It should cover both capability testing and behaviour testing. It may be qualified by the adjectives: abstract, generic or executable, as appropriate. Unless stated otherwise, an "abstract test suite" is meant.

Conforming implementation
(9646) An IUT which satisfies both static and dynamic conformance requirements, consistent with the capabilities stated in the PICS.

Conformity
See Conformance.

Coordinated test method
(9646-5) An Abstract Test Method in which the upper tester is within the SUT and for which a standardised Test Management Protocol is defined for the test coordination procedures, enabling the control and observation to be specified solely in terms of Lower Tester activity, including the control and observation of test management PDUs.

Cross-validation
(GUIDE 2) The process of determining the equivalence of different test tools, i.e. that they yield test results that are consistent with each other.

Declaration of conformity
(EN 45014) Statement of supplier, claiming under his sole responsibility that a product, process or service is in conformity with a specific standard or other normative document.

> NOTE: The term "self certification" should no longer be used, in order to avoid any confusion with the concept of certification which should imply the involvement of a third party.

Distributed test method
(9646) An Abstract Test Method in which the Upper Tester is within the SUT and there is a PCO at the upper service boundary of the IUT.

Dynamic conformance requirements
(9646) One of the requirements which specifies what observable behaviour is permitted by the relevant OSI International Standard(s) or CCITT Recommendation(s) in instances of communication.

Embedded testing
(9646) Testing specified for a single protocol within a multi-protocol IUT including the specification of the protocol activity above the one being tested, but without specifying control or observation at service boundaries within the multi-protocol IUT.

> NOTE: This definition assumes that the protocols of the IUT are ordered in a continuous adjacent user/provider relationship.

European standard
A standard which has been approved pursuant to the statutes of the European standard bodies with which the Community has concluded agreements.

Executable test case
(9646) A realisation of an abstract test case.

> NOTE: In general, the use of the word "test" in this International Standard implies its normal English meaning. Sometimes it may be used as an abbreviation for abstract test case or executable test case. The context should make the meaning clear.

Executable test case error
(9646) A test case error in the realisation of an abstract test case.

Executable test suite (ETS)
(9646) A test suite composed of executable test cases.

Fail (verdict)
(9646) A test verdict given when the observed test outcome either demonstrates non-conformance with respect to (at least one of) the conformance requirement(s) on which the test purpose(s) of the test case is (are) focused, or contains at least one invalid test event, with respect to the relevant International Standard(s) or CCITT Recommendation(s).

Foreseen test outcome
(9646) An observed test outcome identified in the abstract test case.

> NOTE: A foreseen test outcome may include an unidentified test event.

Generic test case
(9646) A specification of the actions required to achieve a specific test purpose, defined by a test body together with a description of the initial testing state in which the test body is to start.

Generic test suite
(9646) A test suite composed of generic test cases.

Idle testing state
(9646) A stable testing state in which there is no established connection of the relevant protocol(s) and in which the state of the SUT is independent of any previously executed test cases.

Implementation under test (IUT)
(9646) That part of a real open system which is to be studied by testing, which should be an implementation of one or more OSI protocols in an adjacent user/provider relationship.

Inconclusive (verdict)
(9646) A test verdict given when the observed test outcome is such that neither a pass nor a fail verdict can be given.

Initial testing state
(9646) The testing state in which a test body starts.

> NOTE: This may be either a stable testing state or a transient state.

Inopportune test event
(9646) A test event which occurs when not allowed to do so by the protocol specification.

Interlaboratory test comparisons
(GUIDE 2) Organization, performance and evaluation of tests on the same or similar items or materials by two or more laboratories in accordance with predetermined conditions.

Interoperability testing
(GUIDE 2) Testing to determine whether two or more systems are able to interwork.

Interworking
(9646) The condition where two or more open systems implement the same product specification, or set of product specifications, in such a way as to be able to carry out a common (distributed) task - covered by the scope of the product specification(s) - in a useful way.

Invalid test event
(9646) A test event that violates at least one conformance requirement of the relevant protocol or transfer syntax specification.

> NOTE: This term is not to be confused with the term "invalid event" as defined in ISO 7776.

(Laboratory) accreditation
(GUIDE 2) Formal recognition that a testing laboratory is competent to carry out specific tests or specific types of tests.

(Laboratory) accreditation body
(GUIDE 2) Body that conducts and administers a laboratory accreditation system and grants accreditation.

(Laboratory) accreditation criteria
(GUIDE 2) See accreditation criteria.

(Laboratory) accreditation system
(GUIDE 2) System that has its own rules of procedure and management for carrying out laboratory accreditation.

Laboratory assessment
(GUIDE 2) Examination of a testing laboratory to evaluate its compliance with specific laboratory accreditation criteria.

Laboratory assessor
(GUIDE 2) Person who carries out some or all functions related to laboratory assessment.

(Laboratory) proficiency testing
(GUIDE 2) Determination of laboratory testing performance by means of inter-laboratory test comparisons.

License (for certification)
(EN 45011) Document, issued under the rules of a certification system, by which a certification body grants to a person or body the right to use certificates or marks of conformity for its products, processes or services in accordance with the rules of the relevant certification scheme.

Local test method
(9646) An Abstract Test Method in which both the lower and upper testers are located within the test system and there is a Point of Control and Observation (PCO) at the upper service boundary of the IUT.

Loop-back abstract test method (YL)
An Abstract Test Method for Open Relay-system in which the SUT operates between two subnetworks, the connections being looped together on one side, and the PCO concentrated on the other side, in a single test system.

Lower tester (LT)
(9646) The representation in this International Standard of the means of providing, during test execution, indirect control and observation of the lower service boundary of the IUT via the underlying service provider.

> NOTE: The underlying service-provider is immediately beneath the (lowest layer) protocol which is the focus of testing. It may use one or more OSI layers, or only the Physical medium.

Mark of conformity (for certification)
(GUIDE 2) Protected mark, applied or issued under the rules of a certification system, indicating that adequate confidence is provided that the relevant product, process or service is in conformity with a specific standard or other normative document.

Means of testing (MOT) (IUTs)
(9646) The combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log.

Norme Européenne de Télécommunications (NET)
An approved technical Recommendation of the CEPT or part or parts thereof which the signatories of the Memorandum of Understanding, established at the meeting of Directors-General of CEPT Administrations, in Copenhagen on 15 November 1985, adopted in accordance with the procedures set down in that Memorandum.

Negotiated exit (NE)
(9646-5) A point at which the test laboratory and the client can mutually decide to terminate the conformance assessment process.

Observed test outcome
(9646) The sequence of test events, together with associated data and/or parameter values, which occurred during test execution of a specific parameterized executable test case.

Outcome
(9646) See Observed, foreseen, unforeseen test outcome.

Overlap (between recognition arrangements)
(GUIDE 2) A situation where two recognition arrangements provide testing services for the same set of base standards.

Parameterized abstract test case
(9646) An abstract test case in which all appropriate parameters have been supplied with values in accordance with a specific PICS and PIXIT.

Parameterized abstract test suite (PATS)
(9646) A Selected ATS in which all test cases have been parameterized in accordance with the appropriate PICS and PIXIT.

Parameterized executable test case
(9646) An executable test case, in which all appropriate parameters have been supplied with values in accordance with a specific PICS and PIXIT, and corresponding to a parameterized abstract test case.

Parameterized executable test suite (PETS)
(9646) A Selected Executable Test Suite (SETS), in which all test cases have been parameterized in accordance with the appropriate PICS and PIXIT, and corresponding to a PATS.

Participating organisation (in a recognition arrangement)
(GUIDE 2) An organisation with obligations and rights according to the rules of the recognition arrangement, or an observer (with obligations and rights which may be restricted).

Pass (verdict)
(9646) A test verdict given when the observed test outcome gives evidence of conformance to the conformance requirement(s) on which the test purpose(s) of the test case is (are) focused, and when all the test events are valid with respect to the relevant International Standard(s) or CCITT Recommendation(s).

PICS proforma
(9646) A document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which when completed for an OSI implementation or system becomes the PICS.

PIXIT proforma
(9646) A document, in the form of a questionnaire, provided by the test laboratory, which when completed during the preparation for testing becomes a PIXIT.

Point of control and observation (PCO)
(9646) A point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method.

> NOTE: A PCO is characterised by the set of Abstract Service Primitives (ASPs) and/or Protocol Data Units (PDUs) that can occur, according to the ATM, at the PCO.

Product specification
(GUIDE 2) The document to which conformity is claimed for the "product" (taken in a wide sense); e.g. an OSI protocol specification, a functional standard, programming language standards. A product specification may be internationally standardized as an European standard (EN), European telecommunication standard (ETS), or as an International standard (ISO, IEC).

Protocol conformance test report (PCTR)
(9646) A document, written at the end of the conformance assessment process, giving the details of the testing carried out for a particular protocol. It lists all of the abstract test cases and identifies those for which corresponding executable test cases were run, together with the verdicts assigned to each test case executed.

Protocol implementation conformance statement (PICS)
(9646) A statement made by the supplier of an OSI implementation or system, stating which capabilities have been implemented, for a given OSI protocol.

Protocol implementation extra information for testing (PIXIT)
(9646) A statement made by a supplier or implementor of an IUT which contains or references all of the information (in addition to that given in the PICS) related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT.

Protocol profile test methodology (PPTM)
The ISO/IEC JTC1/SC21/WG1 work item related to the extension of ISO/IEC 9646 to conformance and conformance testing for International Standardised Profiles (ISPs).

Recognition arrangement (RA)
(GUIDE 2) Agreement that is based on the acceptance by one party of results, presented by another party, from the implementation of one or more designated functional elements of a certification system.

> NOTE 1: Typical examples of recognition arrangements are testing arrangements, inspection arrangements and certification arrangements.

> NOTE 2: Recognition arrangements may be established at, for example, national, regional or international level.

Reference implementation
(9646) An implementation of one or more standards or specifications, against which those standards or specifications may be tested for the purposes of validation of those test tools.

Reference standardized (OSI) abstract test suite (ATS)
(9646) The standardised ATS for which a Means of Testing is realised.

Remote test method
(9646-5) An Abstract Test Method in which the control and observation of test events is specified solely in terms of Lower Tester activity, and in which some requirements for test coordination procedures may be implied or informally expressed in the ATS, but in which no assumption is made regarding their feasibility or realisation.

Repeatability (of results)
(9646) Characteristic of a test case, such that repeated executions on the same IUT under the same conditions lead to the same test verdict, and by extension a characteristic of a test suite.

Reproducibility (of test results)
(GUIDE 2) Characteristic such that testing of the same IUT by different testing laboratories using the same set of tests and employing the same test method shall lead to the results produced by one laboratory being consistent with those produced by the other.

Selected abstract test suite (SATS)
(9646) The subset of an ATS selected using a specific PICS and PIXIT.

Selected executable test suite (SETS)
(9646) The subset of an Executable Test Suite selected using a specific PICS and PIXIT.

Semantically invalid test event
(9646) A test event which is neither inopportune nor syntactically invalid, but which contains a semantic error with respect to the relevant protocol specification (e.g. a PDU containing a parameter value outside the negotiated range for that parameter).

Stable testing state
(9646) A testing state which can be maintained, without prescribed Lower Tester behaviour, sufficiently long to span the gap between one test case and the next in a test campaign.

Standard
(EN 45014) Document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.

Standardized abstract test suite (ATS)
(9646) An abstract test suite specified within an International Standard or CCITT Recommendation or, in the absence of such an International Standard or CCITT Recommendation, within a publicly available document which is in the process of being standardized within ISO/IEC or CCITT, and which has the highest standardization status currently available, having reached at least the committee draft, draft proposal or draft recommendation status.

Static conformance requirement
(9646) One of the requirements which specifies what observable behaviour is permitted by the relevant OSI International Standard(s) or CCITT Recommendation(s) in instances of communication.

Static conformance review
(9646) A review of the extent to which the static conformance requirements are met by the IUT, accomplished by comparing the PICS with the static conformance requirements expressed in the relevant International Standard(s) or CCITT Recommendation(s).

SUT operator
(9646-5) The person or persons designated by the client organization as being responsible for operation and support of the SUT during conformance testing.

Syntactically invalid test event
(9646) A test event which syntactically is not allowed by the protocol specification.

System conformance statement (SCS)
(9646-5) A document summarizing which OSI International Standards or CCITT Recommendations are implemented and to which ones conformance is claimed.

System conformance test report (SCTR)
(9646) A document, written at the end of the conformance assessment process, giving an overall summary of the conformance of the system or implementation to the set of protocols for which conformance testing was carried out.

System under test (SUT)
(9646) The real open system in which the IUT resides.

Technical support function
(GUIDE 2) A function in a recognition arrangement for the purpose of coordinating and harmonising e.g. the selection and use of test specifications, test methods, testing systems, maintenance and cross validation of test tools, and other related technical matters.

Test
(GUIDE 2) Technical operation that consists of the determination of one or more characteristics of a given product, process or service according to a specified procedure.

Test agency
(GUIDE 2)
See Testing laboratory.

Test body
(9646) The sequences of test steps that achieve the test purpose.

Test campaign
(9646) The process of executing the Parameterized Executable Test Suite for a particular IUT and producing the conformance log.

Test case
(9646) A generic, abstract or executable test case.

Test case error
(9646) The term used to describe the result of execution of a test case when an error is detected in the test case itself.

Test coordination procedures (TCP)
(9646) The rules for cooperation between the Lower and Upper Testers during testing.

Test description language
Notation used to specify test cases.

Test engine
See Test system.

Tester
See Lower tester, Upper tester.

Test event
(9646) An indivisible unit of test specification at the level of abstraction of the specification (e.g. sending or receiving a single PDU).

Test group
(9646) A named set of related test cases.

Test group objective
(9646) A prose description of a narrowly defined objective which the test purposes within a specific test group are designed to achieve.

Test House
See Test laboratory.

Testing arrangement
See Recognition arrangement.

Testing laboratory
See Test laboratory.

Test laboratory check-list
(9646-5) A record of test-related information supplied to the client by the test laboratory during the test preparation phase of the conformance assessment process.

Testing methodology
(GUIDE 2) The processes, techniques or approaches employed in (conformance) testing.

Testing requirement
See Conformance requirement.

Testing service
(GUIDE 2) Service provided by a testing laboratory for carrying out testing according to a test specification.

Testing state
(9646) A state encountered during testing, comprising the combination of the states of the SUT, the test system, the protocols for which control and observation is specified in the ATS, and, if relevant, the state of the underlying service.

Testing support function
See Technical support function.

Testing system
See Test system.

Test laboratory
(9646) An organization that carries out conformance testing. This can be a third party, a user organization, a telecommunications administration or recognised private operating agency, or an identifiable part of a supplier organization.

> NOTE: The term 'Testing laboratory' can be used in the sense of a legal entity, a technical entity or both.

Test laboratory manager
(9646-5) The person identified by the test laboratory as being responsible for all matters relating to test laboratory operations.

Test management protocol (TMP)
(9646) A protocol which is used in the test coordination procedures for a particular test suite.

Test method
(GUIDE 2) (1) (in the context of standardization:) See abstract test method.

(2) (in the context of accreditation:) See means of testing.

Test operator
(9646-5) The person or persons designated by the test laboratory as being responsible for running conformance tests against the IUT.

Test preamble
(9646) The sequences of test steps from the starting stable testing state of the test case up to the initial testing state from which the test body will start.

Test postamble
(9646) The sequences of test steps from the end of the test body up to finishing stable testing state(s) for the test case.

Test purpose
(9646) A prose description of a narrowly defined objective of testing, focusing on a single conformance requirement as specified in the appropriate OSI International Standard or CCITT Recommendation (e.g. verifying the support of a specific value of a specific parameter).

Test realization
(9646) The process of producing a Means of Testing IUTs.

Test realizer
(9646) An organization which takes responsibility for providing, in a form independent of the clients of a test laboratory and their IUTs, a Means of Testing IUTs in conformance with an ATS.

Test report
(GUIDE 2) Document that presents test results and other information relevant to a test.

Test requirement
See Conformance requirement.

Test result
(GUIDE 2) The test verdicts and associated information produced as a result of running a test case.

Test service
See Testing service.

Test specification
A description of how to test conformity to the Product Specifications, written at a level of abstraction which makes it suitable for standardization.`

Test standard
See Conformance Testing Standard.

Test step
(9646) A named subdivision of a test case, constructed from test events and/or other test steps.

Test suite (TS)
See (Conformance) test suite.

Test system
(9646) In the context of communication protocols the real system which includes the realization of the Lower Tester.

> NOTE: The same test system can be used as part of several Means of Testing.

Test tool
See Test system.

(Test) verdict
(9646) A statement of "pass", "fail" or "inconclusive", specified in an abstract test case, concerning conformance of an IUT with respect to that test case when it is executed.

Traceability (of test cases)
(GUIDE 2) Ability such that when there is a major distinction between the specification and the realisation of test cases, the realisation of each test case is traceable to its specification, with preservation of assignment of test verdicts or measurements to the corresponding sets of observations.

Transient testing state
(9646) Any testing state which is not a stable testing state.

> NOTE: Transient testing states include those testing states that are in the middle of a logical exchange of PDUs (e.g. to establish a connection or perform negotiation), particularly when a request PDU has been sent (or received) and the corresponding response PDU has not been received (or sent).

Transverse abstract test method (YT)
An Abstract Test Method for Open Relay-systems in which the SUT operates between two subnetworks, with a test system and a PCO on each side to observe and control the connections.

Tree and tabular combined notation (TTCN)
A notation to specify Abstract test suites described in ISO IS 9646-3.

Unforeseen test outcome
(9646) An observed test outcome not identified in the abstract test case.

> NOTE: An unforeseen test outcome can only lead to a test case error or an abnormal test case termination.

Unidentified test event
(9646) A test event which is used to provide for receipt of PDUs and/or ASPs without identifying them in the test case.

> NOTE: In TTCN, the unidentified test event is implemented by the "Otherwise" statement.

Upper tester (UT)
(9646) The representation in ISO IS 9646 of the means of providing, during test execution, control and observation of the upper service boundary of the IUT, as defined by the chosen Abstract Test Method.

Validation
Of a test tool: See Calibration.

Of a language compiler: See Conformance testing.

Valid test event
(9646) A test event which is allowed by the protocol specification, being both syntactically and semantically correct, and occurring when allowed to do so by the protocol specification.

Verdict
See Test verdict.
See also "Fail", "Pass", "Inconclusive" verdict.

Annex A: Acronyms and abbreviations related to specification and testing of communication systems

This list contains the most commonly used abbreviations from three domains:

1. The organizational framework for testing and certification.
2. The domain of OSI, ISDN (Narrowband and Broadband)
3. Methodology for system specification and conformance testing.

NOTE 1: Words that are terms beginning with capital letter. All other words are beginning with small letter, using the rule with some judgment in tricky cases.

NOTE 2: Special signs are insignificant when deciding alphabetical order.

NOTE 3: Numbers are lower than letters. (MS-Word extended character set order).

NOTE 4: This document is subject to periodic maintenance.

AAL	ATM adaptation layer
ACSE	Association control service element
ACT	Asynchronous communication tree
ACT-ONE	Abstract data type language developed at the Technical University of Berlin by Ehrig
Administration*	Administration or recognized private operating agency
ADT	Abstract data type
AFI	Authority and format identifier
ALLF	Additional low layer function(s)
AOW	Asian-Oceanian Workshop
RM	Reference Model
ASE	Application service element
ASN.1	Abstract syntax notation one (ISO 8824)
ASP	Abstract service primitive
ASR	Abstract test suite selection rules
ATC	Abstract test case
ATD	Asynchronous time division
ATM	1. Abstract test method
	2. Asynchronous time multiplexing (=ATD)
	3. Asynchronous transfer mode
ATS	Abstract test suite
BACF	Basic access control function
BC	Bon de Commande (CEC)

BER	1. Bit error ratio
	2. Basic encoding rules
B-ISDN	Broadband ISDN
BLLF	Basic low layer function(s)
BTCF	Basic transit control function
BUNI	Broadband user/network interface (RACE R1044)
CATG	Computer aided test generation
CBO	Continuous bit stream oriented
CBR	Constant bit rate
CCA	CENELEC certification agreement
CCH	Coordination Committee on Harmonization
CCS	1. Cross connect system
	2. Common channel signalling
	3. Calculus of communicating systems
	(A language for communicating systems by R Milner)
CCS#7	CCITT common channel signalling system No. 7
CCSN	Common channel signalling network
CCT	CNMA conformance testing
CC TPDU	Connection confirm transport protocol data unit
CD	Committee Draft (ISO)
CECUA	Confederation of European Computer User Associations
CFS	(R1045) Common functional specification
CIMECO	Centro Italiano Metodologie di Controllo (Italian IT accreditation body)
CLNS	Connection-less network service
CMC	Coherent multi-channel optical communication
CMIP	Common management information protocol
CNMA	Communications network for manufacturing applications (=MAP/TOP Version 3.0)
CO	Connection-oriented
CONS	Connection-oriented network service
COS	Corporation for Open Systems
COSINE	Co-operation for Open Systems Interconnection Networking in Europe

CPN	Customer('s) premises network (=SPN, =UPN)
CRF	Connection related functions
CRS	Communicating rule systems
CS	1. Circuit switching
	2. Co-ordinated single-layer ((abstract) test method)
CSDN	Circuit switched data network
CSE	Co-ordinated single-layer embedded ((abstract) test method)
CSF	Customer service functions (RACE R1044)
CSMA/CD	Carrier sense multiple access with collision detection
CSN	Circuit switched network
CSP	Communicating sequential processes (a research approach by C.A.R. Hoare)
CSPDN	Circuit Switched Public Data Network
CT	Conformance testing
CTR	1. Conformance test report
	2. Common technical regulation (replacing "NET" as technical term).
CTS	The European Community Conformance Testing Service programme
CTS-LAN	CTS Local area network projects
CTS-WAN	CTS Wide area network projects
DA	Draft Addendum (ISO)
DCE	Data circuit-termination equipment
DCR	Dynamic conformance requirement
DEKITZ	Deutsche Koordinierung für IT-Normen konformitätsprüfung und-Zertifizierung (German IT accreditation body)
DFF	Data flow function
DFG	Data flow graph
DIS	Draft international standard (ISO)
DLL	Data link layer
DLSAP	Data link service access point
DNIC	Data network identification code
DP	Draft proposal (ISO)
DS	1. Distributed single-layer ((abstract) test method)
	2. Distinguishing sequence

DSAP	Destination service access point
DSE	Distributed single-layer embedded ((abstract) test method)
DSP	Domain specific part
DTE	Data terminal equipment
EBE	External behavioural expression
ECITC	European Committee for Information Technology Testing and Certification
ECMA	European Computer Manufacturer's Association
ECTEL	European Telecommunications and Professional Electronics Industry
ECTRA	European Committee for Telecom Regulatory Affairs
ED	EWOS Document
EFSM	Extended finite state machine
EMUG	European MAP Users' Group
EN	European standard
ENV	European pre-standard
EOTC	European Organization for Testing and Certification
EPHOS	European procurement handbook for open systems
ESTELLE	Extended state transition model based language
ETCOM	European Testing for Certification for Office and Manufacturing protocols
ETG	EWOS technical guide
ETR	ETSI Technical Report
ETS	1. European Telecommunication Standard
	2. Executable test suite
ETSI	European Telecommunications Standards Institute
EUROBIT	European Association of Manufacturers of Business Machines and Data Processing Equipment
EWOS	European Workshop for Open Systems
FCP	Ferry control protocol
FCTS	Ferry Clip based test system
FDDI	Fibre distributed data interface
FDT	Formal description technique
FRC	Functional reference configuration
FRM	Functional reference model (RACE R1044)

FS	Functional standard(s)
FSM	Finite state machine
FSPICS	Functional standard implementation conformance statement
FSPIXIT	Functional standard implementation extra information for testing
FSRL	Functional standard requirements list
FSTS	Functional standard test specification
FSTS-S	FSTS summary
FTAM	File transfer, access and management
FTMP	Ferry transfer medium protocol
FTP	File transfer protocol
GLA	Generic layering architecture (ECMA TR44)
GOSIP	Government Open Systems Interconnection Profile
GSLB	Groupe Speciale (de Communications à) Large Bande
GSLB-PN	Groupe Speciale (de Communications à) Large Bande - Permanent nucleus
GSM	Groupe Speciale Mobile
GUS	Guide to the use of standards
HD	Harmonization document
HDTV	High definition television
HLC	High layer capabilities
IBC	Integrated broadband communication
IBCN	IBC network
ICF	Intelligent control function
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
I-ETS	Interim European Telecommunication Standard
IN	Intelligent network
INAF	Intelligent network access function
INTAP	Interoperability Technology Association for Information Processing (in AIST) (Japanese OSI user's group)
IPC	Interprocess communication
IPRL	ISPICS requirement list
IS	International standard (ISO)

ISDN	Integrated Services Digital Network
ISCP	ISDN signalling control part
ISP	International Standardised Profile
ISPICS	ISP implementation conformance statement
ISUP	ISDN user part
IT	Information Technology
ITACA	IBCN testing architecture for conformance assessment (RACE R1072)
ITAEG	IT advisory expert group
ITAEGS	IT advisory expert group on standardization
ITAEGC	IT advisory expert group on certification
ITRC	Information Technology Requirements Council (owner of MAC specs)
ITSTC	Information Technology Steering Committee (CEN/CENELEC/ETSI)
IUT	Implementation under test
IWU	Interworking unit
JTAG	Joint Test Action Group (for Boundary Scan testing)
JTC	Joint Technical Committee
LAN	Local Area Network
LAP-B	Link access protocol- Balanced
LAP-D	Link access protocol- D channel
LCRF	Local connection related function
LLC	1. Low layer capabilities (OSI layer 1-3)
	2. Logical link control
LMAP	Lower mapping module
LOTOS	Language of temporal ordering specification
LS	Local single-layer ((abstract) test method)
LSE	Local single-layer embedded ((abstract) test method)
LT	1. Lower tester
	2. Line termination
LTCP	Lower tester communication point
LTS	Labelled transition system
MAC	Medium access control

MAN	Metropolitan area network
MAP	Manufacturing automation protocol
MCU	Multipoint control unit
MHS	Message handling system
MML	Man-machine language
MOT	Means of testing
MPR	The Swedish National Board for Measurement and Testing (Swedish accreditation body)
MPT	Multiport protocol tester
MPTM	Multi-party test method
MSVI	Metasignalling virtual channel identifier
MTA	Message transfer agent
MTCT	Multi-test case table
NA	Network adapter
(N)-ASP	ASP at layer N
NAMAS	National Measurement Accreditation Service (UK accreditation body)
NE	Negotiated exit (9646-5)
NET	Norme Européenne de Télécommunications
NHLF	Network high level function
N-ISDN	Narrowband ISDN
NM	Network management
NNI	Network node interface
(N)-PAI	(N)-protocol addressing information
(N)-PDU	PDU at layer N
(N)-SAP	SAP at layer N (ISO 7498-3)
NSC	Network specialized centre
NT	Network termination
OAMC	Operations, administration and maintenance centre
ODA	Office Document Architecture
OICS	Object implementation conformance statement
OIW	OSI implementors' workshop
OMAP	Operations and maintenance application part

OMC	Operations and maintenance centre
ONA	Office network architecture
ONP	Open network provision
OSF	Open System Foundation
OSI	Open Systems Interconnection
OSITOP	Open Systems Interconnection/technical office protocol (A European OSI user association)
OSTC	Open Systems Testing Consortium
OTL	OSI Testing Liaison
PABX	Private Automatic Branch eXchange
PAD	Packet assembler/disassembler
PARASOL	ATM specific measurement equipment (RACE R1083)
PATS	Parameterized abstract test suite
PCI	Protocol control information
PCO	Point of control and observation
PCT	Protocol conformance testing
PCTR	Protocol conformance test report
PDN	Public data network
PDU	Protocol data unit
PETS	Parameterized executable test suite
PFR	Periodic physical frame sublayer
PHY	Physical medium-dependent sublayer
PICS	Protocol implementation conformance statement
PIXIT	Protocol implementation extra information for testing
PL	Physical layer
PLP	Packet layer protocol
PLT	Parallel Lower Tester
PMD	Physical medium dependent
POH	Path overhead
POSI	Promotion conference for OSI (Japanese programme to promote OSI FS)
PPF	Primitives processing function
PPSC-IT	Public Procurement Subcommittee in the Information Technology sector

PPTM	Protocol profile test methodology
PRC	Protocol reference configuration
prEN	Proposed European standard
PRM	Protocol reference model
PROVE	Provision of verification (RACE R1087)
PSDN	Packet Switched Data Network
PSPDN	Packet Switched Public Data Network
PSTN	Public Switched Telephone Network
PT	1. Protocol tester
	2. Project team
PTE	Protocol testing environment
PTS	1. Profile test specification
	2. Probabilistic transition system
PTSCS	PTS compliance statement
PUT	Parallel Upper Tester
QOS	Quality of service
QOSMIC	QOS verification methodology and tools for integrated communications (RACE R1082)
RA	1. Recognition arrangement (ECITC)
	2. Recognition agreement (EOTC)
RACE	R&D in advanced communication technologies in Europe
RARE	Réseaux associés pour la recherche européenne
RC	Reference configuration
RCD	(R1044) Reference configuration development
RI	Reference implementation
RM	Reference model
RNE	Reseaux National d'Essais (French accreditation body)
ROSE	Remote operations service element
RPOA	Recognised public operating agency
RS	Remote single-layer ((abstract) test method)
RSE	Remote single-layer embedded ((abstract) test method)
RSU	Remote switching unit

RU	Remote unit
SAP	Service access point
SATS	Selected abstract test suite
SB	S-interface, broadband
SCR	Static conformance requirement
SCS	System conformance statement
SCTR	System conformance test report
SDH	Synchronous digital hierarchy
SDL	(CCITT Recommendation Z.100) Specification and description language
SDU	Service data unit
SETS	Selected executable test suite
SGFS	Special Group on Functional Standards
SOGITS	Senior Officials Group for Information Technology Standardization
SOGT	Senior Officials Group, Telecommunications
SPAG	Standards Promotion and Application Group
SPECS	Specification and programming environment for communications software (RACE R1046)
SPN	Subscriber premises network (=CPN, =UPN)
SRM	Stratified reference model (RACE R1014)
SSF	Service support function
STC	Sub technical committee
STD	1. Synchronous time division (=STM)
	2. (Base) standard (or recommendation)
STM	1. Synchronous time multiplexing (=STD)
	2. Synchronous transfer mode
STP	Signalling transfer point
SUT	System under test
SVCI	Signalling virtual channel identifier
SYN	Synchronous channel/synchronous cells sublayer
TA	1. Terminal adapter
	2. Technical assembly (for ETSI, EWOS and others)
TB	T-interface, broadband

TC	Technical committee
TCP	Test co-ordination procedure(s)
TCRF	Transit connection related function
TE	Terminal equipment
TFS	Technical framework specification
TGO	Test group objectives
TH	Terminal handler
TLFF/CC	Technical Liaison Feeders Forum (COS, SPAG, MAP/TOP, POSI) / Conformance and Certification
TLG	Technical liaison group (EWOS)
TMN	Telecommunications management network
TMP	Test management protocol
TM-PDU	Test management PDU
TOP	Technical office protocol
TP	Test purpose(s)
TRAC	Technical Regulation Approval Committee
TS	Test suite
TSS	Test suite structure
TTCN	Tree and tabular combined notation
TTCN.GR	TTCN graphical form
TTCN.MP	TTCN machine processable form
UCF	User control function
ULCT	Upper layer conformance testing group (ISO)
UPN	User premises network (=CPN, =SPN)
URM	(R1077) Usage reference model
UT	Upper tester
VBR	Variable bit rate
VCI	Virtual channel identifier
VPI	Virtual path identifier
WAN	Wide area network
WFMTUG	World Federation of MAP/TOP User Groups
YL	Loop-back abstract test method
YT	Transverse abstract test method

History

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