INTERNATIONAL STANDARD

# ISO/IEC 9646-2

Second edition
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# Information technology — Open Systems Interconnection — Conformance testing methodology and framework —

## Part 2:
Abstract Test Suite specification

*Technologies de l'information — Interconnexion de systèmes ouverts — Cadre général et méthodologie des tests de conformité OSI —*

*Partie 2: Spécification des suites de tests abstraites*


Reference number
ISO/IEC 9646-2:1994(E)

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## Annex

# Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 9646-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee 21, *Open Systems Interconnection, data management and open distributed processing*.

This second edition cancels and replaces the first edition (ISO/IEC 9646-2:1991) which has been technically revised.

ISO/IEC 9646 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — Conformance testing methodology and framework*:

- *Part 1: General concepts*
- *Part 2: Abstract Test Suite specification*
- *Part 3: The Tree and Tabular Combined Notation*
- *Part 4: Test realization*
- *Part 5: Requirements on test laboratories and clients for the conformance assessment process*
- *Part 6: Protocol profile test specification*
- *Part 7: Implementation conformance statements*

Annexes A, B and C of this part of ISO/IEC 9646 are for information only.

# Introduction

This part of ISO/IEC 9646 provides a common approach to the specification of OSI conformance test suites at a level which is independent of the means of executing those test suites (hereafter called "Abstract Test Suites"). This level of abstraction is suitable for standardization and facilitates the comparison of results produced by different organizations which run the corresponding Executable Test Suites.

Clauses 6 and 7 recall that there are requirements on OSI protocol specifiers which have to be fulfilled before there can be an objective basis for the process of developing an Abstract Test Suite. The need is expressed for consistent conformance clauses and for ICS proformas in relevant base specifications (e.g. International Standards or ITU-T Recommendations which specify OSI protocol standards).

Clauses 8 to 14 describe the process of developing an Abstract Test Suite, including the design criteria to be used and guidance on its structure and coverage. The possible Abstract Test Methods are defined and guidance is given to help the test suite specifier to decide which test method(s) to use in the production of a particular test suite. Requirements and guidance are given on the specification of abstract test cases. These include the subdivision of test cases into test steps and the assignment of test verdicts to test outcomes.

The test suite specifier is also required to provide information to the test realizers (*e.g.* limitations governing test case selection).

Finally, in clause 15, guidance and requirements are given on test suite maintenance.

This part of ISO/IEC 9646 is also to be published by ITU-T as Recommendation X.291.

# Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract Test Suite specification

## 1 Scope

**1.1** This part of ISO/IEC 9646 specifies the requirements and gives guidance for the production of system-independent conformance test suites for one or more OSI specifications. In particular, it is applicable to the production of all OSI conformance testing specifications including all draft versions of such conformance testing specifications.

**1.2** This part of ISO/IEC 9646 is applicable to the production of abstract test cases which check the conformance of an implementation to the relevant static and/or dynamic conformance requirements by controlling and observing protocol behaviour. The Abstract Test Methods included in this part of ISO/IEC 9646 are, in fact, capable of being used to specify any test case which can be expressed abstractly in terms of control and observation of Protocol Data Units (PDUs) and Abstract Service Primitives (ASPs). Nevertheless, for some protocols, test cases may be needed which cannot be expressed in these terms. The specification of such test cases is outside the scope of this part of ISO/IEC 9646, although the test cases may themselves need to be included in a conformance testing specification.

NOTE – For example, some static conformance requirements related to an Application service may require testing techniques which are specific to that particular Application.

This part of ISO/IEC 9646 is applicable to the production of test suites for testing implementations of one or more adjacent protocols, whether or not these are embedded under other protocols.

**1.3** The following are outside the scope of this part of ISO/IEC 9646:

a) the relationship between Abstract Test Suite (ATS) specification and Formal Description Techniques;

b) testing by means of test methods which are specific to particular applications, protocols or systems, including testing by means other than PDU exchange.

NOTE – This part of ISO/IEC 9646 applies fully to some but not all Physical layer protocols. Nevertheless, many of the concepts apply to all protocols.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 9646. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 9646 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7498: 1984, *Information processing systems – Open systems – Basic Reference Model.*
(See also CCITT Recommendation X.200 (1984))

ISO/TR 8509: 1987, *Information processing systems – Open Systems Interconnection – Service conventions.*
(See also CCITT Recommendation X.210 (1988))

ISO/IEC 8825: 1990, *Information technology – Open Systems Interconnection – Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1).*
(See also CCITT Recommendation X.209 (1988))

ISO/IEC 9646-1: 1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts.*
(See also ITU-T Recommendation X.290 -[1])

ISO/IEC 9646-3: 1992, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN).*
(See also ITU-T Recommendation X.292 (1993))

1) To be published.

ISO/IEC 9646-3 Amd 1: -[1], *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 3: The Tree and Tabular Combined Notation - Amendment 1: TTCN extensions*

ISO/IEC 9646- 6:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 6: Protocol profile test specification.*
(See also ITU-T Recommendation X.295 -[1])

ISO/IEC 9646- 7: -[1], *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements.*
(See also ITU-T Recommendation X.296 -[1])

1) To be published.