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Foreword

This ETSI Technical Report (ETR) has been produced by the Methods for Testing and Specification (MTS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

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, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

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1 Scope

This ETSI Technical Report (ETR) is an inventory of the documents produced by ETSI and other organizations, which are of interest as references or guides for the various technical aspects of the production of the ETSI standards. This report has been compiled by ETSI TC MTS.

In this ETR, the term standard applies to protocols, profiles, information objects, interfaces or services.

So far, more than one hundred documents have been identified, which cover the specification of standards, their validation, their testing and various associated aspects such as the maintenance, the evaluation of the effort of development (scoping) or the evaluation of the technical quality (quality review tables).

Each document has been identified as a document of reference, or a tutorial, or a style guide or a study paper.

The essential documents, the "musts", are highlighted by a "☞" symbol.

In order to guide the reader, this ETR is made of two main sections: sections 2 and 3 following this section 1.

In section 2, the documents have been classified in different domains of expertise, like the domain of specification or the domain of testing, etc. Each domain is divided in typical subdomains, such as SDL, ASN.1 or ICS for the domain of specifications, or conformance or IXIT or ATS for the domain of testing.

A given document, which may be relevant to several domains and subdomains, appears in one or several lists, each list being relevant to a given domain/subdomain. For instance, most of the ASN.1 documents appear in the domain of specification as well as in the domain of testing. Thus, there are several paths to reach a given information or a given document, and this is done on purpose to facilitate a rapid access to the information.

In this section 2, a document appears with its full title, an indication of its nature (ETR xx, ETS yy, etc.) followed by a document number. (Please note that this document number is purely arbitrary, and was set up by the tool used to constitute this bibliography. In particular there are missing numbers in the sequence).

This document number points the reader to section 3 of this report, where each document is listed individually by increasing document numbers. The information concerning each document contains, in addition to its title and nature, a short abstract, the domain(s) and subdomain(s) of application, its applicability to ETSI, its possible audience, etc.

By looking initially at section 2 of this ETR, a reader should find out within a given domain of expertise what are the main relevant documents. By going to section 3 of this report, the reader should be able to determine if those documents are what he is expecting in term of contents, validity of information, level of knowledge, etc., and to be able to get access to it.

Additional remarks:

- **twin documents:** In several cases, a document is published by an organization (ISO or ETSI for instance), and the same information is also published by another organization (ITU-T or EWOS respectively for this example). Consequence is that there are two different references for a given information. It may correspond to a single physical document (in this case, it is indicated in the comment field describing the document) or it corresponds to two documents with either identical contents or slightly different contents due to delay in the update.

In any case, the fact that there are two references is indicated in the description of the document of section 3. Each document indicates the document number of the twin document. In the section 2 which lists the documents per domain, **only the more up-to-date or the commonly referenced document within ETSI** is listed;

- **document declared "Not applicable" or of "no direct application" in ETSI:** if a document is not applicable, for instance due to a deprecated version and its replacement by a new document, it is still listed in this bibliography, but it appears in section 2 in *italics*, to give a quick warning. Section 3 indicates also its non applicability.

The same applies to documents declared of "no direct application" for ETSI, which also appear in *italics* in section 2.

Availability of the documents:

It was chosen to mention in this bibliography all documents of interest for the production of ETSI Standards, in order to give to the reader the maximum of information. However, the reader must be aware that some documents may be not available.

In particular, this bibliography contains advanced information on some documents which were not published when this bibliography was completed. This advanced information shows the direction for new studies.

These documents have a "status" different of "published" (e.g. "working document", "draft"). An interested reader will have to check if the document is now available. Note that the final drafts are generally available.

The ETSI documents may be distributed by the ETSI secretariat. The availability will be made in accordance with the ETSI information policy.

The non ETSI documents must be requested to the relevant body.

NOTE: Within ETSI, all published documents are available in the ETSI library.

2 Documents ordered by domain, subdomain, category of information

2.1 Domain: specification

2.1.1 Specification: general

2.1.1.1 Study paper


"Methodologies and tools for the development of high quality ETSI standards" - article - (document 106).


"The future of ETSI of quality standards making, validation and testing" - ETR 304 - (document 123).

"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).

2.1.2 Specification: SDL

2.1.2.1 Document of reference

"Specification and Description Language (SDL)" - Recom Z.100 - (document 2). 

"Methods for Testing and Specification - Use of SDL in European Telecommunication Standards - Rules for testability and facilitating validation" - ETS 300 414 - (document 21). 

"SDL combined with ASN.1" - Recom Z.105 - (document 39). 

"Common interchange format for SDL" - Recom Z.106 - (document 143).

"Criteria for the use and applicability of Formal Description Techniques" - Recom Z.110 - (document 20).

2.1.2.2 Tutorial

"SDL with applications from protocol specification" - book on SDL - (document 22).

2.1.2.3 Style guide


"Methods for Testing and Specification (MTS); Specification of protocols and services - Handbook for SDL, ASN.1 and MSC development" - ETR 298 - (document 25).


2.1.2.4 Study paper


"Methods for Testing and Specification (MTS); Semantic relationship between SDL and TTCN - A common semantics representation" - ETR 071 - (document 24).

2.1.3 Specification: ASN.1

2.1.3.1 Document of reference

"Methods for Testing and Specification - Use of SDL in European Telecommunication Standards - Rules for testability and facilitating validation" - ETS 300 414 - (document 21). 


"Specification of abstract syntax notation one (ASN.1): Specification of the basic notation" - Recom X.680 - (document 27). 

"Specification of abstract syntax notation one (ASN.1)" - Recom X.208 - (document 138). 

"Abstract Syntax Notation One (ASN.1): Information Object Specification" - Recom X.681 - (document 29).


"Abstract Syntax Notation One (ASN.1): Constraint Specification" - Recom X.682 - (document 31).

"Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications" - Recom X.683 - (document 33).

"Specification of ASN.1 encoding rules: basic encoding rules, canonical encoding rules and distinguished encoding rules" - Recom X.690 - (document 35). 


"Abstract Syntax Notation One (ASN.1):Packed Encoding Rules" - Recom X.691 - (document 37). 

"SDL combined with ASN.1" - Recom Z.105 - (document 39). 


"Signalling Protocols and Switching (SPS) - ASN.1 library definition" - ETS 300 655 - (document 98). 

2.1.3.2 Tutorial

"Abstract Syntax Notation One (ASN.1): the tutorial and reference" - book on ASN.1 - (document 40).

"Signalling protocols and switching (SPS) - ASN.1 Library index" - ETR 210 - (document 95). 


2.1.3.3 Style guide


"Signalling protocols and Switching (SPS) - guidelines for using ASN.1 in telecommunication application protocols" - ETR 060 - (document 3). 

"Methods for Testing and Specification (MTS); Specification of protocols and services - Handbook for SDL, ASN.1 and MSC development" - ETR 298 - (document 25).

2.1.4 Specification: MSC

2.1.4.1 Document of reference

"Methods for Testing and Specification - Use of SDL in European Telecommunication Standards - Rules for testability and facilitating validation" - ETS 300 414 - (document 21). 


"Message sequence charts (MSC)" - Recom Z.120 - (document 26). 

2.1.4.2 Style guide

"Methods for Testing and Specification (MTS); Specification of protocols and services - Handbook for SDL, ASN.1 and MSC development" - ETR 298 - (document 25).

2.1.5 Specification: Network managt

2.1.5.1 Document of reference

"Structure of Management Information: Guidelines for the Definition of Managed Objects (GDMO)" - Recom X.722 - (document 42). 


"Information Technology - Open Systems Interconnection - Structure of management information: requirements and guidelines for implementation conformance statement proformas associated with OSI management" - IS 10165-6 - (document 46).

2.1.5.2 Tutorial


"GDMO, object modelling and definition for network management" - book on GDMO - (document 43).

2.1.6 Specification: ICS

2.1.6.1 Document of reference


"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 

"Information Technology - Open Systems Interconnection - Structure of management information: requirements and guidelines for implementation conformance statement proformas associated with OSI management" - IS 10165-6 - (document 46).

"Conformance Testing Methodology and Framework - Part 7: Implementation conformance statements (ICS)" - IS 9646-7 - (document 72). 

"General Quality Assurance Checklists for ICS proformas, SCS proformas and Profile RLs" - ETG 044 - (document 110).

2.1.6.2 Style guide

"Methods for Testing and Specification; The Implementation Conformance Statement (ICS) proforma style guide" - ETR 212 - (document 47). 

2.1.7 Specification: profile

2.1.7.1 Document of reference


"Framework and Taxonomy of International Standardized Profiles - Part 1: General principles and Documentation Framework" - TR 10 000-1 - (document 48).

"Framework and Taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI Profiles" - TR 10 000-2 - (document 49).

"Framework and Taxonomy of International Standardized Profiles - Part 3: Principles and Taxonomy for Open System Environment Profiles" - TR 10 000-3 - (document 50).

"General Quality Assurance Checklists for ICS proformas, SCS proformas and Profile RLs" - ETG 044 - (document 110).

2.1.7.2 Style guide

"Methods for Testing and Specification; The Implementation Conformance Statement (ICS) proforma style guide" - ETR 212 - (document 47). 

2.1.8 Specification: bibliography

2.1.8.1 Study paper

"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).

2.2 Domain: validation of specs

2.2.1 Validation of specs: general

2.2.1.1 Study paper

"Methodologies and tools for the development of high quality ETSI standards" - article - (document 106).

"The future of ETSI of quality standards making, validation and testing" - ETR 304 - (document 123).

"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).

2.2.2 Validation of specs: SDL

2.2.2.1 Study paper

"Methods for Testing and Specification - Overview of validation techniques for European Telecommunications Standards (ETSS) containing SDL" - ETR 184 - (document 56).

2.2.3 Validation of specs: bibliography


2.2.3.1 Study paper

"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).


2.3 Domain: testing

2.3.1 Testing: general

2.3.1.1 Document of reference

"Council Directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity" - Council Directive 91/263/EEC - (document 116). 

"Council Directive of 22 July 1993" - Council Directive 93/68/EEC - (document 139).

"Council directive of 29 October 1993 in respect of satellite earth station equipment" - Council Directive 93/97/EEC - (document 140). 

"The new approach" - Council Directive 85/C136/01/EEC - (document 141).

2.3.1.2 Study paper


"Methodologies and tools for the development of high quality ETSI standards" - article - (document 106).


"The future of ETSI of quality standards making, validation and testing" - ETR 304 - (document 123).


"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).


2.3.2 Testing: conformance

2.3.2.1 Document of reference


"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 


"Conformance Testing Methodology and Framework - Part 1: General Concepts" - IS 9646-1 - (document 58). 


"Conformance Testing Methodology and Framework - Part 2: Abstract Test Suite Specification" - IS 9646-2 - (document 60). 

"Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation" - IS 9646-3 - (document 62). 


"Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation. Draft Amendment 1: TTCN Extensions (concurrent TTCN)" - AM 9646-3 AM 1 - (document 64).

"Conformance Testing Methodology and Framework - Part 6: Protocol profile test specification" - IS 9646-6 - (document 70). 

"Conformance Testing Methodology and Framework - Part 7: Implementation conformance statements (ICS)" - IS 9646-7 - (document 72). 

"Methods for Testing and Specification - Development of Conformance Testing Specifications; Quality review tables" - ETR 267 - (document 112). 

"Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation. Draft Amendment 2: Further TTCN Extensions (encoding)" - AM 9646-3 AM 2 - (document 65).

"Conformance Testing Methodology and Framework - Part 4: Test Realization" - IS 9646-4 - (document 66). 

"Vocabulary of terms used in communication protocols conformance testing - Rev 1" - ETG 009 - (document 81).

"Conformance Testing Methodology and Framework - Part 5: Requirements on test laboratories and clients for the Conformance Assessment Process" - IS 9646-5 - (document 68).


"General criteria for the operation of testing Laboratories" - EN 45001 - (document 127).

"Advanced Testing Methods ; Evaluation criteria procedures for the standardization of test specifications for European functional standard" - ETR 025 - (document 107).

"General Quality Assurance Plan for the Protocol and Protocol Profile Test Specification Production Process" - ETG 042 - (document 109).


"General Quality Assurance Checklists for ICS proformas, SCS proformas and Profile RLs" - ETG 044 - (document 110).


2.3.2.2 Tutorial

"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 


"OSI Conformance testing methodology and TTCN" - book on Conf Test - (document 132).


2.3.2.3 Style guide

"Methods for Testing and Specification; The Implementation Conformance Statement (ICS) proforma style guide" - ETR 212 - (document 47). 

"Methods for Testing and Specification - Protocol and profile conformance testing specifications; The TTCN style guide" - ETR 141 - (document 93). 

"Methods for Testing and Specification; Test purpose style guide" - ETR 266 - (document 84). 

"Guidance on the production and completion of SCTR and PCTR proformas" - ETR 153 - (document 87). 

"Methods for Testing and Specification - Proforma for scoping reports" - ETR 171 - (document 105). 

2.3.2.4 Study paper


"Advanced Testing Methods (ATM) - State of research in the area of formal test specification methods" - ETR 049 - (document 23)

"Broad band ISDN - Framework for conformance testing of lower layers in B-ISDN" - ETR 092 - (document 77)

"Methods for Testing and Specification (MTS); guide for the implementation of ISO/IEC 9646 conformance assessment process" - ETR 094 - (document 74)


2.3.3 Testing: netwk integration

2.3.3.1 Tutorial

"Methods for Testing and Specification - Network Integration Testing. Methodological aspects - Test co-ordination procedure style guide" - ETR 193 - (document 83). 

2.3.4 Testing: test operation (lab)

2.3.4.1 Document of reference

"Conformance Testing Methodology and Framework - Part 4: Test Realisation" - IS 9646-4 - (document 66). 


"Conformance Testing Methodology and Framework - Part 5: Requirements on test laboratories and clients for the Conformance Assessment Process" - IS 9646-5 - (document 68).


"General criteria for the operation of testing Laboratories" - EN 45001 - (document 127).

"General criteria for the assessment of testing Laboratories" - EN 45002 - (document 128).

2.3.5 Testing: ASN.1

2.3.5.1 Document of reference


"Specification of abstract syntax notation one (ASN.1): Specification of the basic notation" - Recom X.680 - (document 27). 

"Specification of abstract syntax notation one (ASN.1)": - Recom X.208 - (document 138). 

"Abstract Syntax Notation One (ASN.1): Information Object Specification" - Recom X.681 - (document 29).

"Abstract Syntax Notation One (ASN.1): Constraint Specification" - Recom X.682 - (document 31).


"Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications" - Recom X.683 - (document 33).

"Specification of ASN.1 encoding rules: basic encoding rules, canonical encoding rules and distinguished encoding rules" - Recom X.690 - (document 35). 


"Abstract Syntax Notation One (ASN.1): Packed Encoding Rules" - Recom X.691 - (document 37). 

2.3.5.2 Tutorial

"Abstract Syntax Notation One (ASN.1): the tutorial and reference" - book on ASN.1 - (document 40).

"Signalling protocols and switching (SPS) - ASN.1 Library index" - ETR 210 - (document 95). 


2.3.5.3 Style guide

"Signalling protocols and Switching (SPS) - guidelines for using ASN.1 in telecommunication application protocols" - ETR 060 - (document 3). 

"Methods for Testing and Specification (MTS); Specification of protocols and services - Handbook for SDL, ASN.1 and MSC development" - ETR 298 - (document 25).

2.3.6 Testing: MSC

2.3.6.1 Document of reference

"Message sequence charts (MSC)" - Recom Z.120 - (document 26). 

2.3.6.2 Style guide

"Methods for Testing and Specification (MTS); Specification of protocols and services - Handbook for SDL, ASN.1 and MSC development" - ETR 298 - (document 25).

2.3.7 Testing: Network Managt

2.3.7.1 Document of reference


"Information Technology - Open Systems Interconnection - Structure of management information: requirements and guidelines for implementation conformance statement proformas associated with OSI management" - IS 10165-6 - (document 46).

2.3.7.2 Study paper


"*Framework for conformance testing of network management profiles*" - ETG 037 - (document 45).

2.3.8 Testing: ICS


2.3.8.1 Document of reference

"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 

"Information Technology - Open Systems Interconnection - Structure of management information: requirements and guidelines for implementation conformance statement proformas associated with OSI management" - IS 10165-6 - (document 46).


"Conformance Testing Methodology and Framework - Part 7: Implementation Conformance Statements (ICS)" - IS 9646-7 - (document 72). 

2.3.8.2 Tutorial

"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 


"OSI Conformance testing methodology and TTCN" - book on Conf Test - (document 132).


2.3.8.3 Style guide

"Methods for Testing and Specification; The Implementation Conformance Statement (ICS) proforma style guide" - ETR 212 - (document 47). 


2.3.9 Testing: TSS&TP

2.3.9.1 Document of reference

"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 

"Conformance Testing Methodology and Framework - Part 2: Abstract Test Suite Specification" - IS 9646-2 - (document 60). 

2.3.9.2 Tutorial


"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 


2.3.9.3 Style guide

"Methods for Testing and Specification; Test purpose style guide" - ETR 266 - (document 84). 


2.3.10 Testing: ATS

2.3.10.1 Document of reference

"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 


"Conformance Testing Methodology and Framework - Part 2: Abstract Test Suite Specification" - IS 9646-2 - (document 60). 

2.3.10.2 Tutorial

"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 


"OSI Conformance testing methodology and TTCN" - book on Conf Test - (document 132).

2.3.10.3 Style guide


"Methods for Testing and Specification -Partial and multipart Abstract Test Suites (ATS); Rules for the context-dependent re-use of Abstract test suites" - ETR 190 - (document 97). 

2.3.11 Testing: IXIT

2.3.11.1 Document of reference

"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 


2.3.11.2 Tutorial

"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 

"OSI Conformance testing methodology and TTCN" - book on Conf Test - (document 132).


2.3.12 Testing: test reports

2.3.12.1 Document of reference

"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 


"Conformance Testing Methodology and Framework - Part 5: Requirements on test laboratories and clients for the Conformance Assessment Process" - IS 9646-5 - (document 68).

2.3.12.2 Tutorial

"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 

"OSI Conformance testing methodology and TTCN" - book on Conf Test - (document 132).


2.3.12.3 Style guide

"Guidance on the production and completion of SCTR and PCTR proformas" - ETR 153 - (document 87). 

"Advanced Testing Method - Profile test specifications and conformance testing reports" - ETR 040 - (document 89).

2.3.13 Testing: SCS

2.3.13.1 Document of reference

"Conformance Testing Methodology and Framework - Part 7: Implementation conformance statements (ICS)" - IS 9646-7 - (document 72). 


"General Quality Assurance Checklists for ICS proformas, SCS proformas and Profile RLs" - ETG 044 - (document 110).


2.3.13.2 Style guide

"Guidance on the production and completion of SCS proformas" - ETR 142 - (document 85). 


2.3.14 Testing: profile

2.3.14.1 Document of reference

"Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology" - ETS 300 406 - (document 16). 


"Conformance Testing Methodology and Framework - Part 6: Protocol profile test specification" - IS 9646-6 - (document 70). 

2.3.14.2 Tutorial

"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 

"OSI Conformance testing methodology and TTCN" - book on Conf Test - (document 132).


2.3.14.3 Style guide

"Methods for Testing and Specification; The Implementation Conformance Statement (ICS) proforma style guide" - ETR 212 - (document 47). 

"Advanced Testing Method - Profile test specifications and conformance testing reports" - ETR 040 - (document 89).

2.3.15 Testing: TTCN


2.3.15.1 Document of reference


"Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation" - IS 9646-3 - (document 62). 

"Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation. Draft Amendment 1: TTCN Extensions (concurrent TTCN)" - AM 9646-3 AM 1 - (document 64).

"Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation. Draft Amendment 2: Further TTCN Extensions (encoding)" - AM 9646-3 AM 2 - (document 65).


2.3.15.2 Tutorial


"Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles)" - ETR 021 - (document 5). 

"Methods for Testing and Specification -Network Integration Testing. Methodological aspects - Test co-ordination procedure style guide" - ETR 193 - (document 83). 

"OSI Conformance testing methodology and TTCN" - book on Conf Test - (document 132).

2.3.15.3 Style guide

"Methods for Testing and Specification - Protocol and profile conformance testing specifications; The TTCN style guide" - ETR 141 - (document 93). 


"Methods for Testing and Specification - Partial and multipart Abstract Test Suites (ATS); Rules for the context-dependent re-use of Abstract test suites" - ETR 190 - (document 97). 

2.3.15.4 Study paper

"Methods for Testing and Specification (MTS); Semantic relationship between SDL and TTCN - A common semantics representation" - ETR 071 - (document 24).

2.3.16 Testing: scoping

2.3.16.1 Style guide

"Methods for Testing and Specification - Proforma for scoping reports" - ETR 171 - (document 105). 

2.3.17 Testing: bibliography

2.3.17.1 Study paper

"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).

2.4 Domain: interoperability

2.4.1 Interoperability: general

2.4.1.1 Document of reference

"Vocabulary of terms used in communication protocols conformance testing - Rev 1" - ETG 009 - (document 81).

2.4.1.2 Study paper

"Methods for Testing and Specification - Interoperability and conformance testing - classification scheme" - ETR 130 - (document 101).

"The interoperability vocabulary" - ETG 029 - (document 103).

2.5 Domain: project management

2.5.1 Project management: general


2.5.1.1 Study paper

"Methodologies and tools for the development of high quality ETSI standards" - article - (document 106).

2.6 Domain: quality

2.6.1 Quality: general

2.6.1.1 Document of reference

"Methods for Testing and Specification - Development of Conformance Testing Specifications; Quality review tables" - ETR 267 - (document 112). 

"General Quality Assurance Plan for the Protocol and Protocol Profile Test Specification Production Process" - ETG 042 - (document 109).

"General Quality Assurance Checklists for ICS proformas, SCS proformas and Profile RLs" - ETG 044 - (document 110).


2.6.1.2 Study paper

"Methodologies and tools for the development of high quality ETSI standards" - article - (document 106).

"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).

2.6.2 Quality: conformance

2.6.2.1 Document of reference

"Methods for Testing and Specification - Development of Conformance Testing Specifications; Quality review tables" - ETR 267 - (document 112). 

2.6.3 Quality: bibliography

2.6.3.1 Study paper

"Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS" - book - (document 146).

2.7 Domain: maintenance

2.7.1 Maintenance: ATS

2.7.1.1 Document of reference

"Scheme for maintenance of profile test specifications - issue 5" - ETG 020 - (document 114).

2.8 Domain: certification

2.8.1 Certification: general

2.8.1.1 Document of reference

"General criteria for certification bodies operating product certification" - EN 45 011 - (document 124).


"General criteria for the operation of testing Laboratories" - EN 45001 - (document 127).

"General criteria for laboratory accreditation bodies" - EN 45003 - (document 129).


2.9 Domain: regulation

2.9.1 Regulation: general

2.9.1.1 Document of reference

"Council Directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity" - Council Directive 91/263/EEC - (document 116). 

"Council Directive of 22 July 1993" - Council Directive 93/68/EEC - (document 139).

"Council directive of 29 October 1993 in respect of satellite earth station equipment" - Council Directive 93/97/EEC - (document 140). 

"The new approach" - Council Directive 85/C136/01/EEC - (document 141).

"Council directive of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products" - Council Directive 85/374/EEC - (document 144).

"Council Directive of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility" - Council Directive 89/336/EEC - (document 117).

"Council Directive of 19 February 1973 on the approximation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits" - Council Directive 73/23/EEC - (document 118).

2.10 Domain: all ETSI deliverables

2.10.1 All ETSI deliverables: general

2.10.1.1 Study paper

"Making International Standards Happen First in Europe, Decisions of the ETSI General Assembly on the future of telecommunications standards making in Europe" - book HLTF - (document 142).

3 Detailed flat list of documents (ordered by document number)

3.1 Document 2: ITU-T Recom Z.100 (1994) 

Title: Specification and Description Language (SDL). **Status:** published.

Domains of application:

- specification (SDL/tool).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This recommendation provides a language (SDL, or Specification and Description Language) for unambiguous specification and description of the behaviour of telecommunications systems. The specifications and descriptions using SDL are intended to be formal in the sense that it is possible to analyse and interpret them unambiguously.

The main area of application for SDL is the specification of the behaviour of aspects of real time systems. Applications include:

- a) call processing (e.g. call handling, telephony signalling, metering) in switching systems;
- b) maintenance and fault treatment (e.g. alarms, automatic fault clearance, routine tests) in general telecommunications systems;
- c) system control (e.g. overload control, modification and extension procedures);
- d) operation & maintenance functions, network management;
- e) data communication protocols.

SDL can, of course, be used for the functional specification of the behaviour of any object whose behaviour can be specified using a discrete model; i.e. the object communicates with its environment by discrete messages.

SDL is a rich language and can be used for both high level informal (and/or formally incomplete) specifications, semi-formal and detailed specifications. The user must choose the appropriate parts of SDL for the intended level of communication and the environment in which the language is being used. Depending on the environment in which a specification is used then many aspects may be left to the common understanding between the source and the destination of the specification.

An SDL specification defines a system behaviour in a stimulus/response fashion, assuming that both stimuli and responses are discrete and carry information. In particular a system specification is seen as the sequence of responses to any given sequence of stimuli.

The system specification model is based on the concept of communicating extended finite state machines.

SDL also provides structuring concepts which facilitate the specification of large and/or complex systems. These constructs allow the partitioning of the system specification into manageable units that may be handled and understood independently. Partitioning may be performed in a number of steps resulting in a hierarchical structure of units defining the system at different levels.

To specify the properties of complex systems several classes of constructs are needed to represent:

- specification of system structure i.e. cooperating parts (system, block, processes);
- specification of the communication with the environment and within the system (channels and signal routes as communication paths and signals as messages that are carried over them);
- specification of the behaviour (the dynamic properties) of each of the parts (processes as extended finite state machines);
- specification of internal information affected and affecting the behaviour of the system (data used internally or carried by signals).

Comment: SDL- 88 corresponds to: ITU, Geneva. CCITT Blue book: Vol.X - fasc. X.1, Recommendation Z.100 - Functional Specification and Description Language (SDL), 1989. SDL-92 corresponds to: ITU, Geneva. Specification and Description Language (SDL), 1994.

3.2 Document 3: ETSI ETR 060 (April 1995)

Title: Signalling protocols and Switching (SPS) - guidelines for using ASN.1 in telecommunication application protocols.

Origin/Authors: SPS2 PT52 . **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: style guide. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

The purpose of this ETR is to provide guidelines on the use of ASN.1 for specifying telecommunication application protocols.

The main objectives of the recommendations made in this ETR are:

- allow the re-use of data types from one domain to another;
- ease protocol evolution, taking into account compatibility issues;
- ease the maintainability of the specifications;
- ease automated implementation of encoding and decoding functions;
- ease the production of test specifications, especially when specified using TTCN which makes a direct use of the ASN.1 type definitions of the protocol to be tested.

Comment: New version to be published in August 1995. Reason: to enhance the forward compatibility rules to include the use of the ellipsis notation and to provide guidance on the use of ASN.1 '93 notation.

3.3 Document 5: ETSI ETR 021 (Sept 91)

Title: Advanced Testing Methods ; Tutorial on protocol conformance testing (Especially OSI standards and profiles).

Origin/Authors: PT 005 (EWOS). **Status:** published.

Domains of application:

- testing (ATS, conformance, ICS, IXIT, profile, test reports, TSS&TP, TTCN).

Category of information: tutorial. **Audience:** beginner.

Applicability in ETSI: relevant. **Validity level:** partially obsolete.

Abstract:

This ETR provides an introduction to the techniques of Protocol Conformance Testing. It is a guide which attempts to explain these techniques without too many details, starting with what is available and actually practised for OSI and the Telecommunications Standards now embedded in the OSI "lower layers".

It also acts as a tutorial on the standardized techniques and procedures for OSI conformance testing, when a product is to be tested against a set of OSI standards. It addresses single layer base standards and profiles. It is based on ISO/IEC 9646, "OSI conformance testing methodology and framework".

The following points are addressed by this ETR:

Part 1 - Conformance testing: scene and players.

Part 2 - Conformance requirements in protocols.

Part 3 - Conformance testing: methodology overview.

Part 4 - Design of a conformance testing.

Part 5 - Harmonization - certification - accreditation - arbitration - maintenance.

Appendix A - Who's who in Conformance testing.

Appendix B - Further readings on conformance testing.

Appendix C - a TTCN example.

Appendix D - List of abbreviations.

Appendix E - Index.

Comment: This tutorial needs revision to align with evolutions of ISO/IEC 9646, in particular profile testing (ISO/IEC 9646 part 6), multi-party testing, ICS (ISO/IEC part 7), etc.

Twin document: 15

3.4 Document 15: EWOS ETG 010

Title: Tutorial on protocol conformance testing (Especially OSI standards and profiles).

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- testing (ATS, conformance, ICS, IXIT, profile, test reports, TTCN).

Category of information: tutorial. **Audience:** beginner.

Applicability in ETSI: relevant. **Validity level:** partially obsolete.

Abstract:

See twin document.

Twin document: 5.

3.5 Document 16: ETSI ETS 300 406 (April 1995) 

Title: Methods for Testing and Specification (MTS) - Protocol and profile conformance testing specifications; standardization methodology.

Origin/Authors: MTS PT38. **Status:** published.

Domains of application:

- specification (ICS);
- testing (ATS, conformance, ICS, IXIT, profile, test reports, TSS&TP).

Category of information: reference. **Audience:**

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This ETS specifies a methodology for developing telecommunications conformance testing specifications with the final objective to standardize them.

It defines the components to be produced when specifying a European conformance Testing Standard (TS) in the domain of telecommunications.

This methodology applies to conformance Testing Standards for protocols, for profiles, for information objects, for interfaces, and for services.

The test of physical aspects, such as "layer 1", analogue measurements, Electro-Magnetic Compatibility (EMC), is not covered by this ETS. However, part of the methodology may be still be applied, e.g. the concepts of ICS, IXIT, Test Purposes (TPs), and Test Suite Structure (TSS).

This ETS is applicable to organizations such as Conformance Testing Services (CTS) programmes, pre-standardization institutions, private institutions, which develop conformance testing specifications with the objective of contributing them for the purposes of European telecommunications standardization.

This ETS contains two types of information, following a twofold objective:

- it clarifies the principles of the ISO/IEC 9646 testing framework and methodology, as well as the concept of profile;
- it defines additional criteria for European telecommunications Testing Standards, whereby it constitutes a "European telecommunications profile" of the ISO/IEC 9646 methodology, containing its own recommendations.

3.6 Document 20: ITU-T Recom Z.110 (1990)

Title: Criteria for the use and applicability of Formal Description Techniques **Status:** published.

Domains of application:

- specification (SDL).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

The use of FDT is still relatively new and phased procedures are required to introduce their use. This recommendation proposes the procedures to accomplish this task.

3.7 Document 21: ETSI ETS 300 414 (May 1994) 

Title: Methods for Testing and Specification - Use of SDL in European Telecommunication Standards - Rules for testability and facilitating validation.

Origin/Authors: MTS PT37. **Status:** published.

Domains of application:

- specification (ASN.1, MSC, SDL).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This document specifies rules for the use of SDL and MSC in ETSS. It is intended that SDL and MSC diagrams will be used in ETSS, in combination with text, informal figures and tables. SDL diagrams are to be used to formalize those parts of an ETS that need to be defined precisely and unambiguously.

3.8 Document 22: book on SDL (1991)

Title: SDL with applications from protocol specification.

Origin/Authors: F. Belina, D. Hogrefe, A. Sarma.

Book information: Prentice hall. **Status:** published.

Domains of application:

- specification (SDL).

Category of information: tutorial. **Audience:** beginner.

Applicability in ETSI: relevant. **Validity level:** partially obsolete.

Abstract:

(derived from the book preface).

This textbook on the Specification and Description Language aims to meet the urgent need of a popular description of the language, particularly concerning its latest version known as SDL 88....The book also contains a comprehensive discussion of the use of SDL for protocol specification, and can be used as an introduction to the protocol specification area as well.

A brief discussion of the benefits and implications of using specification languages is given in the introduction...

...

This textbook provides a complete treatment of the language constructs in order to enable the reader to understand and write SDL specifications without the reference language definition.

3.9 Document 23: ETSI ETR 049 (Oct 1992)

Title: Advanced Testing Methods (ATM) - State of research in the area of formal test specification methods.

Origin/Authors: ATM. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: study paper. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** partially obsolete.

Abstract:

This ETR presents an overview of the current research problems and approaches in the field of Protocol Conformance Testing by, firstly, introducing the general problems and then by introducing the current research approaches that are applied to tackle the problems.

3.10 Document 24: ETSI ETR 071 (Jun 1993)

Title: Methods for Testing and Specification (MTS); Semantic relationship between SDL and TTCN - A common semantics representation.

Origin/Authors: MTS PT 31. **Status:** published.

Domains of application:

- specification (SDL);
- testing (TTCN).

Category of information: study paper. **Audience:** specialist.

Applicability in ETSI: not applicable. **Validity level:** partially obsolete.

Abstract:

This ETR define a Common Semantics Representation (CSR) for SDL and TTCN, The term CSR refers to a representation, able to represent the semantics of objects from different domains in a common model.

The CSR described in this ETR is an operational model, consistent with the semantics of SDL and TTCN. It is defined as a compositional hierarchical model, which enables reasoning about the dynamic behaviour of SDL and TTCN specifications at different levels of observability.

The CSR is defined as a model for *basic* SDL and TTCN *abstract evaluation trees*. The CSR defines an operational semantics in terms of *Labelled Transition Systems (LTS)*. The handling of data is on an abstract level and does not deal with coding and representation information as e.g. ASN.1.

This ETR gives guidance on the transformation of basic and TTCN abstract evaluation trees to the CSR model. The validation of the CSR with respect to the semantics defined for SDL and TTCN is given in-line with the definition of the CSR.

3.11 Document 25: ETSI ETR 298

Title: Methods for Testing and Specification (MTS); Specification of protocols and services - Handbook for SDL, ASN.1 and MSC development.

Origin/Authors: MTS PT60. **Status:** published.

Domains of application:

- specification (ASN.1, MSC, SDL);
- testing (ASN.1, MSC).

Category of information: style guide. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

Not available.

3.12 Document 26: ITU-T Recom Z.120 (1994)

Title: Message sequence charts (MSC). **Status:** published.

Domains of application:

- specification (MSC);
- testing (MSC).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

The purpose of recommending MSC is to provide a trace language for the specification and description of the communication behaviour of system components and their environment by means of message interchange.

In connection with other languages (such as SDL), it can be used to support methodologies for system specification, design, simulation, testing and documentation.

The main area of application for MSC is an overview specification of the communication behaviour for real time systems, in particular telecommunication switching systems.

A syntax for MSC is presented in abstract, textual, and graphical representation. A corresponding informal (verbal) semantics description is provided.

3.13 Document 27: ITU-T Recom X.680 (1995) 

Title: Specification of abstract syntax notation one (ASN.1): Specification of the basic notation
Status: published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This recommendation/standard presents the ASN.1 standard notation for the definition of data types, values and constraints on data types. A data type is a class of information (numeric, textual, ...). A data value is an instance of such a class. This document defines several basic types and their corresponding values, and rules for combining them into more complex types and values.

The ASN.1 notation applies whenever it is necessary to define abstract syntax of information; it is applicable particularly but not exclusively to application protocols.

The use of ASN.1 (syntax notation for abstract syntaxes) does not imply the use of any particular encoding rules.

Some possible encoding rules (Basic, Canonical, Distinguished, Packed Encoding Rules) are specified in the related specifications X.690 and X.691.

Comment: This document is physically identical to ISO/IEC 8824-1. A former version of ASN.1 was published as X.208 (1988) by ITU-T or ISO/IEC 8824 (same number as the more recent version in ISO/IEC). This 1994 version is NOT supported when using ASN.1 with TTCN.

Twin document: 28.

3.14 Document 28: ISO/IEC IS 8824-1 (1995)

Title: Specification of abstract syntax notation one (ASN.1): Specification of the basic notation.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (ASN.1).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to X.680.

Twin document: 27.

3.15 Document 29: ITU-T Recom X.681 (1995)

Title: Abstract Syntax Notation One (ASN.1): Information Object Specification. **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

An application designer frequently needs to design a protocol which will work with any number of instances of some class of information objects. This recommendation/standard presents the ASN.1 notation which allows information object classes as well as individual information objects and information object sets thereof to be defined and given reference names.

Comment: This document is physically identical to ISO/IEC 8824-2.

Twin document: 30.

3.16 Document 30: ISO/IEC IS 8824-2 (1995)

Title: Abstract Syntax Notation One (ASN.1): Information Object Specification.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to X.681.

Twin document: 29.

3.17 Document 31: ITU-T Recom X.682 (1995)

Title: Abstract Syntax Notation One (ASN.1): Constraint Specification. **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

An application designer uses the ASN.1 notation to define a structured data type. A notation is also required to further constrain the values that can appear, for instance to restrict the range of some components.

This recommendation/standard presents the notation for the general case of constraint specification.

Comment: This document is physically identical to ISO/IEC 8824-3.

Twin document: 32.

3.18 Document 32: ISO/IEC IS 8824-3 (1995)

Title: Abstract Syntax Notation One (ASN.1): Constraint Specification.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to X.682.

Twin document: 31.

3.19 Document 33: ITU-T Recom X.683 (1995)

Title: Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications

Status: published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

An application designer needs to write specifications in which certain aspects are left undefined. These aspects are later defined by other groups (profile group for instance).

This recommendation/standard presents the provision for parameterized reference names or parameterized assignments .

Comment: This document is physically identical to ISO/IEC 8824-4.

Twin document: 34.

3.20 Document 34: ISO/IEC IS 8824-4 (1995)

Title: Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to X.683.

Twin document: 33.

3.21 Document 35: ITU-T Recom X.690 (1995) 

Title: Specification of ASN.1 encoding rules: basic encoding rules, canonical encoding rules and distinguished encoding rules **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This recommendation/standard defines three sets of encoding rules that may be applied to values of types defined using the ASN.1 notation. Application of these encoding rules produces a transfer syntax for such values. It is implicit in the specification of these encoding rules that they are also used for decoding.

Use of encoding rules specified here is not forced by the use of the ASN.1 notation to specify the abstract syntax.

Comment: This document is physically identical to ISO/IEC 8825-1.

Twin document: 36

3.22 Document 36: ISO/IEC IS 8825-1 (1995)

Title: Specification of ASN.1 encoding rules: basic encoding rules.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (ASN.1).

Category of information: reference. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to X.690.

Twin document: 35

3.23 Document 37: ITU-T Recom X.691 (1995) 

Title: Abstract Syntax Notation One (ASN.1): Packed Encoding Rules **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This recommendation/standard defines a set of Packed Encoding Rules that may be applied to values of types defined using the ASN.1 notation. The term Packed is so called because these rules achieve a more compact representation than that achieved by the Basic encoding rules and its derivatives described in ITU-T rec X.690/ ISO/IEC 8825-1.

Application of these encoding rules produces a transfer syntax for such values. It is implicit in the specification of these encoding rules that they are also used for decoding.

Comment: This document is physically identical to ISO/IEC 8825-2.

Twin document: 38

3.24 Document 38: ISO/IEC IS 8825-2 (1995)

Title: Abstract Syntax Notation One (ASN.1): Packed Encoding Rules.

Origin/Authors: SC21 **Status:** published.

Domains of application:

- specification (ASN.1).

Category of information: reference. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to X.691.

Twin document: 37

3.25 Document 39: ITU-T Recom Z.105 (1995) 

Title: SDL combined with ASN.1. **Status:** final draft.

Domains of application:

- specification (ASN.1, SDL).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This recommendation defines how ASN.1 can be used in combination with SDL. The intention is that the structure and the behaviour of systems are described with SDL, while parameters of exchanged messages and internally used data are described with ASN.1. This recommendation is an extension to Z.100.

This document presents a syntax and semantics definition for the combination of SDL and ASN.1. In the appendices, several overviews of the combined language are given as well as examples and guidelines for the usage of this recommendation.

The main area of application is the specification of telecommunication systems. The combined use of SDL and ASN.1 permits a coherent way to specify the structure and behaviour of telecommunication systems, together with data, messages and encoding of messages that these systems use.

3.26 Document 40: book on ASN.1 (1990)

Title: Abstract Syntax Notation One (ASN.1): the tutorial and reference.

Origin/Authors: Steedman Douglas.

Book information: Technology Appraisal. **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: tutorial. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** partially obsolete.

Abstract:

(derived from the book preface).

This book is intended for anyone who would like to be able to read, write or speak ASN.1. No specific prior knowledge is demanded of the reader.

The tutorial, which constitutes the main body of the book, covers all of the feature of the notation, including the 1988 enhancements and the notorious macro capability, as well as the basic encoding rules. There are also chapters concerned with the fundamental concepts on which ASN.1 is based, its role in OSI, its history and its likely evolution...

Comment: Does not cover the 1992 versions of ASN.1 (X.690).

3.27 Document 42: ITU-T Recom X.722 (1993) 

Title: Structure of Management Information: Guidelines for the Definition of Managed Objects (GDMO)
Status: published.

Domains of application:

- specification (Network managt).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This recommendation / IS specifies:

- the relationship between the relevant standards and the definition of managed object classes;
- the appropriate methods to be adopted for the definition of managed object classes and their attributes, notifications, actions and behaviour;
- the relationship of managed object class definitions to management protocol, and what protocol-related definitions are required;
- the recommended documentation structure for managed object class definition.

Comment: This document is physically identical to ISO/IEC 10165-4.

Twin document: 134.

3.28 Document 43: book on GDMO (1995)

Title: GDMO, object modelling and definition for network management.

Origin/Authors: Baha Hegrawi.

Book information: Technology appraisal. **Status:** published.

Domains of application:

- specification (Network Managt).

Category of information: tutorial. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

Not available.

3.29 Document 44: book from ECITC (1993)

Title: The ECITC Guide to IT&T Testing and Certification.

Book information: ECITC guide. **Status:** published.

Domains of application:

- certification (general);
- testing (general).

Category of information: tutorial. **Audience:**

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

This book explains how testing and certification within the ECITC (European Committee for Information Technology and Telecommunication Testing and Certification) works and what its purposes are. It also gives names, addresses and numbers to organizations which the reader may want to turn to for further information or for the use of services.

The intended readers are the procurers of IT&T equipment, also the suppliers and manufacturers.

3.30 Document 45: EWOS ETG 037 (1993)

Title: Framework for conformance testing of network management profiles.

Origin/Authors: EGNM/PT16. **Status:** published.

Domains of application:

- testing (Network managt).

Category of information: study paper. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** partially obsolete.

Abstract:

This document provides a framework for conformance and testing concepts as they apply to OSI management standards as well as a conformance testing strategy specifically for the current OSI management profiles (AOM profiles).

This document was initiated by EWOS PT16, then harmonized at international level (AOW, OIW, EWOS).

3.31 Document 46: ISO/IEC IS 10165-6 (1994)

Title: Information Technology - Open Systems Interconnection - Structure of management information: requirements and guidelines for implementation conformance statement proformas associated with OSI management.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (ICS, Network Managt);
- testing (ICS, Network Managt).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This recommendation/standard provides requirements and guidelines for MCS proformas, MOCS proformas, MIDS proformas and MRCS proformas and for the specification of these proformas. These proformas are applicable to standards for OSI management including definitions of managed objects.

MCS: Management Conformance Statement; provides a summary of PICS proforma, MOCS proforma and MRCS proforma.


MOCS: Managed Object Conformance Statement; a statement made by an implementor to claim conformance to a managed object class definition.

MRCS: Managed Relationship Conformance Statement; a statement made by a supplier of a managed relationship implementation, such as a name binding definition.

MIDS proforma: Managed Information Definition Statement proforma; a document, in the *form* of a questionnaire (but not to be filled out by a supplier), which is used in the construction of a MOCS proforma.

Comment: This document is physically identical to X.724.

Twin document: 133.

3.32 Document 47: ETSI ETR 212 (1995) 

Title: Methods for Testing and Specification; The Implementation Conformance Statement (ICS) proforma style guide.

Origin/Authors: MTS PT38. **Status:** published.

Domains of application:

- specification (ICS, profile);
- testing (conformance, ICS, profile).

Category of information: style guide. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This ETR is intended to be used by ICS proforma specifiers. It provides recommendations and practical guidance in order to produce ICS proformas and profile requirement lists. It contains also a template of an ICS proforma specification for a base standard and an example of requirement list for a profile. This style guide does not cover the Managed Object Conformance Statement (MOCS) proformas.

Within ETSI, ICS proformas are generally produced using Microsoft Word for windows word processor. The style guide gives specific guidance on its use, in this particular context. The electronic version of the template of a base specification ICS proforma, and the example of requirement list are available. The electronic version of the template should be used as the physical basis of an actual ICS proforma, with the minimum modifications.

This style guide should be applied in ETSI for the development of new ICS proformas. The existing ICS proformas have not to be modified to be compliant with this ETR.

Moreover, when collaboration with other standardization instances, e.g. at an international level, either in the form of an ETSI profiling activity on a base ICS proforma specification provided by ITU-T or ISO, or in the form of a planned contribution, the use of this style guide should be made to the extent of allowing compatibility with any practice in use in the concerned group.

Comment: A TCR-TR is planned to make this ETR binding in ETSI.

3.33 Document 48: ISO/IEC TR 10 000-1 (Dec 1994)

Title: Framework and Taxonomy of International Standardized Profiles - Part 1: General principles and Documentation Framework.

Origin/Authors: SGFS. **Status:** final draft.

Domains of application:

- specification (profile).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

This part of ISO/IEC TR 10000 defines the concept of profiles and the way they are documented in International Standardized Profiles. It outlines the concepts of profiles, the general taxonomy or classification scheme, and the format and contents of ISPs.

A distinction is made between a profile and an ISP documenting one or more profiles.

3.34 Document 49: ISO/IEC TR 10 000-2 (Jan 1995)

Title: Framework and Taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI Profiles.

Origin/Authors: SGFS. **Status:** final draft.

Domains of application:

- specification (profile).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

The purpose of this part 2 of ISO/IEC TR 10000 is to provide a full classification for profiles which may be or have been submitted for ratification as International Standardized Profiles (ISP). Most of the profiles are OSI profiles, which is a subset of OSE profiles. But there is also a classification for profiles outside of OSI, like library or medical.

The fact that a profile is defined by this classification does not reflect that this really exists.

The directory of existing profiles is in SGFS SD4 Document. See this document.

Twin document: 55.

3.35 Document 50: ISO/IEC TR 10 000-3 (Jan 1995)

Title: Framework and Taxonomy of International Standardized Profiles - Part 3: Principles and Taxonomy for Open System Environment Profiles.

Origin/Authors: SGFS. **Status:** final draft.

Domains of application:

- specification (profile).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

The purpose of this part 3 of ISO/IEC TR 10000 is to provide a full classification for Open System Environment (OSE) profiles which may be or have been submitted for ratification as International Standardized Profiles (ISP).

It outlines the basic OSE objectives and concepts, and defines an approach and format of OSE profiles specified by ISPs.

SGFS SD4 document contains the directory of ISPs and the OSE profiles contained therein.

3.36 Document 56: ETSI ETR 184

Title: Methods for Testing and Specification - Overview of validation techniques for European Telecommunications Standards (ETTs) containing SDL.

Origin/Authors: MTS PT65. **Status:** published.

Domains of application:

- validation of specs (SDL).

Category of information: study paper. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

The purpose of this ETR is to identify future standardization work items necessary to support the implementation of a formal validation process into the production of all European Telecommunication Standards (ETTs) having a functional content expressed using the Specification and Description Language (SDL), defined in ITU-T Recommendation Z.100.

NOTE: SDL is not the only language that can be used for formal specifications of function and behaviour. It is, however, the language currently recommended for ETTs.

The relationship of the validation process is considered within the context of ETS and test suite development. The constituent parts of the validation process are identified and described and the capabilities of existing modelling tools are reviewed against ETSI's requirements. It is likely to take a number of years before an ideal validation procedure interleaved with the ETS development process can be realized and so some short term measures are proposed. Finally, a work plan for the progression of formal validation methods within ETSI during 1995 and 1996 is presented.

3.37 Document 58: ISO/IEC IS 9646-1 (1994) 

Title: Conformance Testing Methodology and Framework - Part 1: General Concepts.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

ISO/IEC 9646 is a multi-part International Standard which specifies a general methodology for testing the conformance of products to OSI specifications which the products are claimed to implement. The methodology applies to testing conformance to:

- a) the specification of an OSI protocol;
- b) the specification of a transfer syntax used in combination with a specific OSI protocol;
- c) the specification of an OSI protocol profile, including the testing of conformance to any specified information objects used in combination with one or more of the protocols, as specified in the profile;
- d) the specifications of a combination of OSI protocols, possibly used in combination with a specified transfer syntax and/or one or more specified information objects.

The OSI specification to which conformance is tested may be contained in an International Standard, an ITU-T Recommendation, or an International Standardized Profile.

This part of ISO/IEC 9646 includes tutorial introductory material which provides

- a) an exposition of the meaning of conformance in the context of OSI;
- b) a description of the major categories of conformance tests;
- c) an introduction to the conformance assessment process;
- d) an introduction to the Abstract Test Methods and their applicability;
- e) an introduction to the concepts of test suite design.

In addition, this part describes the relationship between the other parts of ISO/IEC 9646 and the activities involved in conformance testing, and introduces the concept of compliance with respect to the other parts of ISO/IEC 9646.

Twin document: 59.

3.38 Document 59: ITU-T Recom X.290 (95)

Title: Conformance Testing Methodology and Framework - General Concepts. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** partially obsolete.

Abstract:

See twin document.

Comment: Recommendation corresponding to ISO/IEC 9646 edition 2 is not yet published.

Twin document: 58.

3.39 Document 60: ISO/IEC IS 9646-2 (1994) 

Title: Conformance Testing Methodology and Framework - Part 2: Abstract Test Suite Specification.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- testing (ATS, conformance, TSS&TP).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

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.

Twin document: 61.

3.40 Document 61: ITU-T Recom X.291 (1995)

Title: Conformance Testing Methodology and Framework - Abstract Test Suite Specification.

Status: published.

Domains of application:

- testing (ATS, conformance, TSS&TP).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** partially obsolete.

Abstract:

See twin document.

Comment: Recommendation corresponding to ISO/IEC 9646 edition 2 is not yet published.

Twin document: 60.

3.41 Document 62: ISO/IEC IS 9646-3 (Jan 1996) 

Title: Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation.

Origin/Authors: SC21. **Status:** final draft.

Domains of application:

- testing (conformance, TTCN).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This part 3 defines the notation used to code the abstract test cases, to test the conformity of an implementation to a protocol standard or to a profile.

Tools exists to support TTCN, like an editor to verify the syntax, or a style guide to do "good" TTCN. See these documents.

Comment: Includes Amendment 1 and Draft Amendment 2 for TTCN complements (doc 64 and 65).

Twin document: 63.

3.42 Document 63: ITU-T Recom X.292 (1993)

Title: Conformance Testing Methodology and Framework - The Tree and Tabular Combined Notation.
Status: published.

Domains of application:

- testing (TTCN).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** partially obsolete.

Abstract:

See twin document.

Twin document: 62.

3.43 Document 64: ISO/IEC AM 9646-3 AM 1 (1993)

Title: Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation. Draft Amendment 1: TTCN Extensions (concurrent TTCN).

Origin/Authors: SC21. **Status:** final draft.

Domains of application:

- testing (conformance, TTCN).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** obsolete.

Abstract:

This document describes the additions of TTCN, called Concurrent TTCN, in view of writing test cases where the implementation under test can communicate with more than one lower testers, to run parallel protocol sessions. This technic is also called Multi-party testing. This concurrent TTCN is used in ETSI to test a network for instance, or a relay function.

Though approved as a standard, this extension has not yet been incorporated to ISO/IEC 9646 part 3, mainly due to the lack of an editor.

Comment: Now included in ISO/IEC 9646-3 (doc 62)

3.44 Document 65: ISO/IEC AM 9646-3 AM 2 (1993)

Title: Conformance Testing Methodology and Framework - Part 3: The Tree and Tabular Combined Notation. Draft Amendment 2: Further TTCN Extensions (encoding).

Origin/Authors: SC21 **Status:** final draft

Domains of application:

- testing (conformance, TTCN).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** obsolete.

Abstract:

This second amendment is still under review for approval as a standard. It covers further TTCN extensions, mainly the operations, the encoding information and the relation between TTCN and ASN.1.

Comment: Now included in ISO/IEC 9646-3 (doc 62).

3.45 Document 66: ISO/IEC IS 9646-4 (1994) 

Title: Conformance Testing Methodology and Framework - Part 4: Test Realization.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- testing (conformance, test operation (lab)).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This part of ISO/IEC 9646 specifies requirements and gives guidance concerning the realization of a Means of Testing (MOT), in conformance with a reference Abstract Test Suite (ATS) specification, specified in compliance with ISO/IEC 9646-2. This part of ISO/IEC 9646 is applicable to producing MOTs for testing a single protocol, multiple protocols or a profile.

NOTE - This implies the use of ATSS as defined in ISO/IEC 9646-1. However, within this part, the term ATS also applies to the additional Abstract Test Cases designed for testing a specific profile, and included in the Profile Specific Test Specification (PSTS).

These requirements are limited to those aspects of an MOT which can be mapped on to the abstract testing functions defined in ISO/IEC 9646-1, or which are essential to a proper use of the ATS. Such aspects might include a facility to produce conformance log, or the progression of the Implementation Extra Information for Testing (IXIT) proformas. Further implementation details of test systems and Upper Testers are outside the scope of this part of ISO/IEC 9646.

Acceptance, validation and installation of MOT are outside the scope of this part of ISO/IEC 9646.

Twin document: 67.

3.46 Document 67: ITU-T Recom X.293 (1995)

Title: Conformance Testing Methodology and Framework - Test Realization. **Status:** published.

Domains of application:

- testing (conformance, test operation (lab)).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** partially obsolete.

Abstract:

See twin document.

Comment: Recommendation corresponding to ISO/IEC 9646 edition 2 is not yet published.

Twin document: 66.

3.47 Document 68: ISO/IEC IS 9646-5 (1994)

Title: Conformance Testing Methodology and Framework - Part 5: Requirements on test laboratories and clients for the Conformance Assessment Process.

Origin/Authors: SC21. **Status:** published.

Domains of application:

- testing (conformance, test operation (lab), test reports).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

1.1 This part of ISO/IEC 9646 specifies requirements on both the test laboratory and the client, for the conduct of the conformance assessment process. The requirements are those necessary to achieve comparability of results of tests on similar implementations performed by different test laboratories. Implementations could support one base specification only, multiple base specifications or one or more profile(s) based on one or more base specifications. This part of ISO/IEC 9646 also provides some guidance on the conformance assessment process.

1.2 The requirements include:

- a) requirements for the testability of the implementation with respect to Abstract Test Methods;
- b) general requirements on the test laboratory and the client applicable to any conformance assessment process;
- c) exchange of technical and administrative information, including a System Conformance Statement, an Implementation Conformance Statement for each relevant base or profile specification, and Implementation eXtra Information for Testing for each Abstract Test Suite (ATS) to be used for testing each base specification, combination of base specifications or component of each profile, as appropriate, plus for profile testing the Profile Test Specification Summary for each profile;
- d) cooperation between the test laboratory and the client to reach an agreement on the definition of the Implementation Under Test, on the Abstract Test Methods and ATSs to be used and on the conditions under which testing will be performed;
- e) requirements for the structure and content of the conformance test reports that document the results of the conformance assessment process.

1.3 This part of ISO/IEC 9646 is applicable equally to those test laboratories which are affiliated to suppliers or procurers, and those which are independent.

1.4 This part of ISO/IEC 9646 is applicable to conformance assessment of implementations of OSI and Integrated Services Digital Network (ISDN) base specifications that comply with the relevant requirements for testability in ISO/IEC 9646-2, and/or OSI and ISDN profile specifications that comply with the relevant requirements for testability in ISO/IEC 9646-6,

based on conformance testing specifications specified in compliance with ISO/IEC 9646-2, and if appropriate based on Profile Test Specification Summaries and Profile Specific Test Specifications specified in compliance with ISO/IEC 9646-6, and using Means of Testing (MOT) in compliance with ISO/IEC 9646-4.

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

- a) the production of diagnostic trace information, additional to that in the conformance log, resulting from testing performed by the test laboratory, and the supply to the client;
- b) aspects of test laboratory operations which are not specific to conformance testing implementations of OSI base specifications and profiles;
- c) accreditation of test laboratories;
- d) certification of implementations of OSI protocols.

Twin document: 69.

3.48 Document 69: ITU-T Recom X.294

Title: Conformance Testing Methodology and Framework - Requirements on test laboratories and clients for the Conformance Assessment Process. **Status:** published.

Domains of application:

- testing (conformance, test operation (lab), test reports).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** partially obsolete.

Abstract:

See twin document.

Comment: Recommendation corresponding to ISO/IEC 9646 edition 2 is not yet published.

Twin document: 68.

3.49 Document 70: ISO/IEC IS 9646-6 (1994) 

Title: Conformance Testing Methodology and Framework - Part 6: Protocol profile test specification.

Origin/Authors: SC21 **Status:** published.

Domains of application:

- testing (conformance, profile)

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This part of ISO/IEC 9646 specifies the requirements and provides guidance for the production of Profile Test Specifications (PTs) for conformance testing of OSI protocol profiles. This part of ISO/IEC 9646 also specifies requirements concerning the expression of conformance requirements in protocol profile specifications.

This part of ISO/IEC 9646 is applicable to testing the conformance of a profile implementation to the static and dynamic conformance requirements of each protocol and any information objects included in the profile, by controlling and observing Protocol Data Unit (PDU) exchanges.

Testing requirements that go beyond conformance are outside the scope of this part of ISO/IEC 9646.

Twin document: 71

3.50 Document 71: ITU-T Recom X.295 (1991)

Title: Conformance Testing Methodology and Framework - Protocol profile test specification.
Status: final draft.

Domains of application:

- testing (conformance, profile).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** partially obsolete.

Abstract:

See twin document.

Comment: This new part is not yet published by ITU-T.

Twin document: 70.

3.51 Document 72: ISO/IEC IS 9646-7 (1995) 

Title: Conformance Testing Methodology and Framework - Part 7: Implementation conformance statements (ICS).

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (ICS);
- testing (conformance, ICS, SCS).

Category of information: reference. **Audience:**

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This part of ISO/IEC 9646 gives guidance on the concepts of Implementation Conformance Statements (ICS) and System Conformance Statements (SCS) related to OSI specifications and specifies requirements and gives guidance on the production of ICS, ICS proformas, ICS templates and profile Requirements Lists (RL).

This part of ISO/IEC 9646 specifies for these documents, the structure, the questions to be asked, the syntax and notation to be used and the semantics of the questions and expected answers.

No generic ICS template is provided because of the wide variety of OSI specifications for which conformance requirements are stated. Nevertheless, this part of ISO/IEC 9646 specifies general requirements that are applicable to any OSI specification.

Other than guidance on the relation between ICS and Implementation eXtra Information for Testing (IXIT), requirements and guidance on IXIT are outside the scope of this part of ISO/IEC 9646.

Twin document: 73.

3.52 Document 73: ITU-T Recom X.296 (1995)

Title: Conformance Testing Methodology and Framework - Implementation conformance statements.

Status: final draft.

Domains of application:

- specification (ICS);
- testing (ICS).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This new part is not yet published by ITU-T.

Twin document: 72.

3.53 Document 74: ETSI ETR 094 (Nov 1993)

Title: Methods for Testing and Specification (MTS); guide for the implementation of ISO/IEC 9646 conformance assessment process.

Origin/Authors: MTS PT24V. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: study paper. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** partially obsolete.

Abstract:

In order to have an effective and efficient conformance testing environment in Europe supporting the M-IT-03, it is necessary to have harmonized test environments and testing procedures. To date, ISO/IEC 9646 have been implemented in different ways, using different test tools, making it difficult to evaluate and compare test tool products. Consequently, it is often difficult and costly for different tools supporting the ISO/IEC 9646-5 Conformance Assessment Process (CAP) to be integrated within a test laboratory.

This ETR is a technical guide for the implementation of the ISO/IEC 9646-5 CAP. Systems, such as clients systems, test laboratories and test tools supporting the recommendations of this guide support an "Open Test Environment".

The main component of this ETR is an abstract model of the ISO/IEC 9646-5 CAP described in SDL/GR. The model breaks down the CAP into a number of individual sub-tasks and identifies relevant information flows between processes and between processes and clients. Each information flow in the model is called a conformance data object and its data is defined using ASN.1 type notation. Since these data objects can be implemented in different ways within real test systems, an interchange format is specified for certain conformance data objects thought suitable for exchange between test environments for further processing. The ETR also provides a Test Tool Support Statement Proforma which allows test tool developers to indicate support for CAP processes and any interfaces that support the exchange of conformance data objects.

3.54 Document 77: ETSI ETR 092 (Jul 1993)

Title: Broad band ISDN - Framework for conformance testing of lower layers in B-ISDN.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: study paper. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

A conformance testing methodology and framework for OSI protocols already exists in ISO/IEC 9646. The purpose of this ETR is to clarify whether and how the OSI framework could be extended to B-ISDN lower layers.

The focus is on requirements for specific extensions to the current methodology so that conformance testing of B-ISDN protocols becomes viable and effective.

The impact of high speed operation on performance requirements of the necessary testing environment is beyond the scope of this ETR. However, the testing of quality of service aspects (traditionally considered a performance matter in low speed data networks) might be viewed as a subject of conformance in the case of B-ISDN.

3.55 Document 80: ETSI ETR 022 (01/1993)

Title: Vocabulary of terms used in communication protocols conformance testing.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: reference. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** partially obsolete.

Abstract:

This ETR has been prepared jointly by ETSI-MTS and EWOS EGCT with the objective of creating a common terminology within EWOS and ETSI in the area of Protocol Conformance Testing.

The terms in the vocabulary have stable definitions within the Conformance Testing and certification communities.

An annex is also provided with acronyms and abbreviations commonly used in the field of Protocol Conformance Testing.

Comment: This ETR was not updated recently. For a more complete definition of terms related to conformance, refer to EWOS ETG 009 revised in 1995.

Twin document: 81.

3.56 Document 81: EWOS ETG 009 (1995)

Title: Vocabulary of terms used in communication protocols conformance testing - Rev 1.

Origin/Authors: EGCT. **Status:** final draft.

Domains of application:

- interoperability (general);
- testing (conformance).

Category of information: reference. **Audience:**

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This document has been developed by taking extracts

- from ISO documents:
 - like ISO/IEC 9646-1 for conformance testing vocabulary;
 - ISO/IEC TR 13233 for vocabulary on certification;
 - ISO/IEC TR 10000 for Profile related definitions.
- and from POSIX documents:
 - like IEEE P2003 on conformance to POSIX.

It contains some terms of OSE and ODP as well.

Comment: to be approved by EWOS TA, Dec 1995 and to be harmonized worldwide with OIW and AOW before publication of Rev 1.

Twin document: 80.

3.57 Document 82: CEN/CENELEC EN 45 014 (1989)

Title: General criteria for declaration of conformity. **Status:** published.

Domains of application:

- certification (general).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

This standard sets forth the recommended procedures for when the manufacturer offers or is requested to declare that a product is in conformity with specific standards or other normative documents.

3.58 Document 83: ETSI ETR 193 (Sep 1993) 

Title: Methods for Testing and Specification -Network Integration Testing. Methodological aspects - Test co-ordination procedure style guide.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- testing (netwk integration, TTCN).

Category of information: tutorial. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This document defines Network Integration Testing and its methodology aspects. NIT approach is suitable for the testing of international networks to facilitate automatic execution of test suite between public network operators. NIT methodology is in accordance with ISO 9646 using multi-party testing method.

This document gives some examples of Test Coordination Procedures to be applied between two or more testers, and gives a style guide for the use of concurrent TTCN.

3.59 Document 84: ETSI ETR 266 

Title: Methods for Testing and Specification; Test purpose style guide.

Origin/Authors: MTS PT38. **Status:** published.

Domains of application:

- testing (conformance, TSS&TP).

Category of information: style guide. **Audience:** beginner.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This document provides guidance for the test purpose specifiers for various aspects, such as:

- what is a test purpose, its role, some criteria to determine when it is pertinent or relevant to define one TP, the problem of the test coverage;
- the method to define a correct and useful TP, the possible use of templates to lead to a testable TP;
- the notion of readability and naming conventions for coherence;
- how to organize the set of TP, the advantages or problems when combining them.

The notion of test purposes originally developed for conformance testing is also extended to any kind of testing.

3.60 Document 85: ETSI ETR 142 (Oct 1994) 

Title: Guidance on the production and completion of SCS proformas.

Origin/Authors: MTS **Status:** published.

Domains of application:

- testing (SCS)

Category of information: style guide. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

The purpose of this ETR is to provide a guide on the harmonized production and completion of System Conformance Statements (SCSs) in line with the ISO/IEC 9646. The SCS is one of the documents which is exchanged between a client and a test laboratory during the test preparation phase. It was first defined in ISO/IEC 9646-1, currently the SCS is defined in detail in ISO/IEC 9446-7 in conjunction with the Implementation Conformance Statements (ICS).

This ETR does not duplicate work done in ISO/IEC 9646-1 and -7. Where possible, only a reference to the relevant paragraph in ISO/IEC 9646-7 is given. In addition, a generic example for a SCS is given in annex A to this ETR.

This ETR addresses the following audience:

- organizations that are responsible for defining SCS proformas, e.g. test laboratories;
- clients of test laboratories who have to prepare SCSs during the preparation phase of a conformance assessment process;
- test laboratories who base their information for a test campaign on the information given in the SCS.

In this version of the guidelines, only aspects covered by ISO/IEC DIS 9646-7 are discussed. e.g. additional requirements defined by management conformance summary as defined in ISO/IEC 10165-6 are for further study.

Twin document: 86.

3.61 Document 86: EWOS ETG 034 (May 1994)

Title: Guidance on the production and completion of SCS proformas.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- testing (SCS).

Category of information: style guide. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Twin document: 85.

3.62 Document 87: ETSI ETR 153 (Nov 1994) 

Title: Guidance on the production and completion of SCTR and PCTR proformas.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- testing (conformance, test reports).

Category of information: style guide. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This document provides guidance on the production and on the completion of SCTR and PCTR proformas, which are two different processes.

Basic format and minimum requirements are defined in ISO/IEC 9646-5. These basic formats have been extended to provide generic proformas that meet ISO/IEC guide 25.

This ETR addresses two different audiences:

- 1 - organizations responsible for standardizing and implementing conformance test specifications
- 2 - test laboratories that complete test reports as the end process of conducting conformance test campaigns.

Annex A and B provide proforma templates for SCTR and PCTR respectively.

Comment: supersedes ETR 040/ETG 016.

Twin document: 88.

3.63 Document 88: EWOS ETG 043 (Sep 1994)

Title: Guidance on the production and completion of SCTR and PCTR proformas.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- testing (test reports).

Category of information: style guide. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: supersedes ETG 016/ETR 040.

Twin document: 87.

3.64 Document 89: ETSI ETR 040 (Jun 1992)

Title: Advanced Testing Method - Profile test specifications and conformance testing reports.

Origin/Authors: ATM. **Status:** published.

Domains of application:

- testing (profile, test reports).

Category of information: style guide. **Audience:**

Applicability in ETSI: not applicable. **Validity level:** obsolete.

Abstract:

This document is now obsolete. For the profile testing specification part, refer to ISO/IEC 9646-6 or ETS 300406. For the conformance testing reports, refer to ETR 153/ ETG 043 as well as ISO/IEC 9646-5 or ETS 300406.

Comment: For profile test specifications, refer to ISO/IEC 9646 part 6. For testing reports, refer to ETR 153 and ISO/IEC 9646 part 5.

3.65 Document 93: ETSI ETR 141 (Oct 1994) 

Title: Methods for Testing and Specification - Protocol and profile conformance testing specifications; The TTCN style guide.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- testing (conformance, TTCN).

Category of information: style guide. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** partially obsolete.

Abstract:

This ETR is intended to support a developer of an ATS using TTCN. This TTCN style guide is not a tutorial - a tutorial tries to explain **what** the features of TTCN are, whereas for readers of this ETR, it is assumed that the features of TTCN are known, therefore, guidelines are given on **how** to best use these features to achieve the intended quality aspects.

Clause 4 treats the general design aspects of an ATS. Clause 5 provides some statements about parameterization of ATSs from the viewpoint of profiles. Clauses 6 to 14 provide guidelines for the following subjects:

- naming conventions;
- type definitions;
- test suite operations;
- aliases;
- constraint definitions;
- test cases;
- test steps;
- default trees;
- TTCN extensions.

Comment: This version does not cover concurrent TTCN.

Twin document: 94.

3.66 Document 94: EWOS ETG 025

Title: Protocol and profile conformance testing specifications; The TTCN style guide.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- testing (TTCN).

Category of information: style guide. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** partially obsolete.

Abstract:

See twin document.

Twin document: 93.

3.67 Document 95: ETSI ETR 210 

Title: Signalling protocols and switching (SPS) - ASN.1 Library index.

Origin/Authors: SPS 2 PT 52. **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: tutorial. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

The main objective of this ETR is to establish a library index for the ASN.1 library, containing ASN.1 type and value definitions that have been checked by an ASN.1 tool.

This library index:

- lists all library elements;
- lists all users of library elements;
- lists all definers of library elements.

3.68 Document 97: ETSI ETR 190 (1994) 

Title: Methods for Testing and Specification - Partial and multipart Abstract Test Suites (ATS); Rules for the context-dependent re-use of Abstract test suites.

Origin/Authors: MTS PT54V. **Status:** published.

Domains of application:

- testing (ATS, TTCN).

Category of information: style guide. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This ETR gives guidance on the creation of re-usable abstract test suites written in TTCN by providing some rules and associated examples.

The main subject is the abstract specification level, but to some extent, tools functionalities are discussed and maintenance and libraries are considered too.

3.69 Document 98: ETSI ETS 300 655 (1995) 

Title: Signalling Protocols and Switching (SPS) - ASN.1 library definition.

Origin/Authors: SPS2. **Status:** published.

Domains of application:

- specification (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This ETS contains the ASN.1 definitions of application elements common to ETSI standards.

This allows the reuse of common application elements, but also it detects when multiple definitions exist, thanks to the TCR-TR 046 which contains the ASN.1 library index.

3.70 Document 101: ETSI ETR 130 (Apr 1994)

Title: Methods for Testing and Specification - Interoperability and conformance testing - classification scheme.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- interoperability (general).

Category of information: study paper. **Audience:** all.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

This ETR defines a classification of different types of interoperability. Four different classes are defined, covering the protocol aspects, the service aspects, the application aspects and the user aspects. Qualifications on the definitions are shown in clause 6. The relationship to corresponding standards are described, and an example of the application of the concept to an instance of interoperability is shown for clarification.

Twin document: 102.

3.71 Document 102: EWOS ETG 028

Title: Methods for Testing and Specification - Interoperability and conformance testing - classification scheme.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- interoperability (general).

Category of information: study paper. **Audience:** all.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

See twin document.

Twin document: 101.

3.72 Document 103: EWOS ETG 029 (May 1993)

Title: The interoperability vocabulary.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- interoperability (general).

Category of information: study paper. **Audience:** all.

Applicability in ETSI: no direct application. **Validity level:** partially obsolete.

Abstract:

Not available.

3.73 Document 105: ETSI ETR 171 (Feb 1995) 

Title: Methods for Testing and Specification - Proforma for scoping reports.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- testing (conformance, scoping).

Category of information: style guide. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

The scoping report summarizes the findings of the scoping activity.

The objectives of the scoping activity are to provide a clear definition of its objectives and tasks. It is a preliminary study of the requirements applying to the standard(s) that will be produced by the PT.

The objective of holding a scoping activity separately from the development project is to lead to:

- a) a more accurate evaluation of the resource needed;
- b) a technical pre-design leading to unambiguous Terms of Reference for the coming project;
- c) a formal acceptance of the Terms of Reference (and scoping report) before the project starts, protecting it against any change of direction during its lifetime;
- d) an acceptance of the Terms of Reference (and scoping report) by the project, which eases the task of its steering group or parent STC.

In addition, it is an explicit purpose of the scoping activity to perform some education of the Parent Committee on the choices that will be proposed in the scoping report, and on the stakes lying behind them.

3.74 Document 106: ETSI article (Mar 1995)

Title: Methodologies and tools for the development of high quality ETSI standards.

Origin/Authors: MTS

Book information: G. Brusasco, C. Don **Status:** published.

Domains of application:

- project management (general);
- quality (general);
- specification (general);
- testing (general);
- validation of specs (general).

Category of information: study paper. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This article discusses how methodologies can significantly contribute to ensuring a proper level of technical quality of standards.

Doing so, it defines what are the essentials in standardization, what are the technical quality practices, what are the language and tools available for standardization (like SDL and ASN.1) and testing (like TTCN).

Comment: This article was published in the ETSI book called: "European Telecommunications Standardization and the Information Society, The state of the art 1995" published in 1995.

3.75 Document 107: ETSI ETR 025 (May 1992)

Title: Advanced Testing Methods ; Evaluation criteria procedures for the standardization of test specifications for European functional standard.

Origin/Authors: ATM. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: not applicable. **Validity level:** obsolete.

Abstract:

It is the objective of this document to define the procedures to be followed and the criteria to be applied during the definition of a test specification for a European OSI profile or OSI Functional Standard.

The scope of this document is to provide EWOS EGs and ETSI TCs with a checklist of all the components or documents which compose a test specification. It describes the different procedures and the different steps in the test specification standardization process. It also describes the criteria for evaluating existing test specifications and their coverage and gives guidelines and procedures for developing or completing test specifications.

Comment: contents of this ETR was partly included in ETS 300 406 for the part relative to ETSI criteria.

Twin document: 108.

3.76 Document 108: EWOS ETG 008

Title: Evaluation criteria procedures for the standardization of test specifications for European functional standard.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- testing (conformance).

Category of information: reference. **Audience:**

Applicability in ETSI: not applicable. **Validity level:** obsolete.

Abstract:

See twin document.

Comment: ETSI criteria are included in ETS 300 406.

Twin document: 107.

3.77 Document 109: EWOS ETG 042 (Sep 1994)

Title: General Quality Assurance Plan for the Protocol and Protocol Profile Test Specification Production Process.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- quality (general);
- testing (conformance).

Category of information: reference. **Audience:**

Applicability in ETSI: not applicable. **Validity level:** up to date.

Abstract:

This document identifies general quality criteria to be met by producers of OSI protocols and OSI protocol profile test specifications.

These criteria are provided for checking compliance with the standard conformance testing methodology (ISO/IEC 9646) but not for checking that the test specifications accurately reflect the relevant protocol or profile specifications.

It also provides the checklists that may be used to check their quality.

The checklists are used:

- to ensure that no important requirements have been forgotten,
- to record which requirements have been checked, which it has been decided not to check, and any comment associated with any of them.

Comment: The EWOS quality plan is not applicable to ETSI, as it is not designed for telecommunication products. An equivalent document exists in ETSI, with ETSI criteria (see document 112).

3.78 Document 110: EWOS ETG 044 (Sep 1994)

Title: General Quality Assurance Checklists for ICS proformas, SCS proformas and Profile RLs.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- quality (general);
- specification (ICS, profile);
- testing (conformance, SCS).

Category of information: reference. **Audience:**

Applicability in ETSI: not applicable. **Validity level:** up to date.

Abstract:

This document identifies general quality criteria to be met by producers of Implementation Conformance Statement (ICS) proformas, System Conformance Statement (SCS) proformas, profile requirement lists specifications, and Management Conformance Summary (MCS) proformas.

These criteria are provided for checking compliance with the standard conformance testing methodology (ISO/IEC 9646) but not for checking that the test specifications accurately reflect the relevant protocol or profile specifications.

It also provides the checklists that may be used to check their quality.

The checklists are used:

- to ensure that no important requirements have been forgotten;
- to record which requirements have been checked, which it has been decided not to check, and any comment associated with any of them.

Comment: The EWOS quality plan is not applicable to ETSI, as it is not designed for telecommunication products. An equivalent document exists in ETSI, with ETSI criteria (See Doc 112).

3.79 Document 112: ETSI ETR 267 

Title: Methods for Testing and Specification - Development of Conformance Testing Specifications; Quality review tables.

Origin/Authors: MTS PT 38. **Status:** published.

Domains of application:

- quality (conformance, general);
- testing (conformance).

Category of information: reference. **Audience:** all.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

Not available.

3.80 Document 114: EWOS ETG 020 (Apr 1992)

Title: Scheme for maintenance of profile test specifications - issue 5.

Origin/Authors: EGCT. **Status:** published.

Domains of application:

- maintenance (ATS).

Category of information: reference. **Audience:**

Applicability in ETSI: not applicable. **Validity level:** obsolete.

Abstract:

Not available.

Comment: under revision. As it is now, this document is common for ETSI and EWOS but does not take into account the ETSI specifics.

3.81 Document 116: CEC Council Directive 91/263/EEC (29/04/91) 

Title: Council Directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity.

Status: published.

Domains of application:

- regulation (general);
- testing (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

this directive, known as the terminal equipment directive, states the rules concerning the terminal equipment, i.e. the equipment intended to be connected to the public telecommunication network.

It specifies the essential requirements to be met, such as safety, etc. It refers to the notion of compliance and the notion of mutual recognition of their conformity.

Comment: Often referred to as the "terminal directive".

3.82 Document 117: CEC Council Directive 89/336/EEC (03/05/89)

Title: Council Directive of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility. **Status:** published.

Domains of application:

- regulation (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

Not available.

Comment: Often referred to as the "EMC directive".

3.83 Document 118: CEC Council Directive 73/23/EEC (19/02/73)

Title: Council Directive of 19 February 1973 on the approximation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits. **Status:** published.

Domains of application:

- regulation (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

Not available.

Comment: Often referred to as the "Low voltage directive".

3.84 Document 123: ETSI ETR 304 (Aug 1995)

Title: The future of ETSI of quality standards making, validation and testing.

Origin/Authors: MTS **Status:** final draft

Domains of application:

- specification (general);
- testing (general);
- validation of specs (general).

Category of information: study paper. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

Starting from the High Level Task Force recommendation 31 dealing with the validation of standards, this paper sets out an analysis by objectives of the different validation and testing activities possible for ETSI, and suggests recommendations for the implementation of the different activities.

3.85 Document 124: CEN/CENELEC EN 45 011 (1989)

Title: General criteria for certification bodies operating product certification **Status:** published.

Domains of application:

- certification (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

These criteria cover certification bodies operating a product certification of conformity with product standards through initial testing and possibly assessment of a factory quality system and its acceptance, followed by surveillance that takes into account the testing samples from the factory and the open market and possibly the factory quality system.

3.86 Document 127: CEN/CENELEC EN 45001 (1989)

Title: General criteria for the operation of testing Laboratories **Status:** published.

Domains of application:

- certification (general);
- testing (conformance, test operation (lab)).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

This standard lists criteria to which laboratory should conform when they perform testing operations, and which should be applied by accreditation bodies in accrediting laboratories, by public authorities when designating laboratories for regulatory purposes, and by any other organizations assessing laboratories.

These criteria include impartiality, integrity, technical competence, and lists some working procedures or equipment constraints.

3.87 Document 128: CEN/CENELEC EN 45002 (1989)

Title: General criteria for the assessment of testing Laboratories. **Status:** published.

Domains of application:

- testing (test operation (lab)).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

This standard lists the criteria which should be applied by accrediting bodies, when a laboratory is being examined to be accredited. This process is called laboratory assessment, and is carried out by laboratory assessors.

These criteria include how to apply for accreditation, and a summary of the accreditation process.

3.88 Document 129: CEN/CENELEC EN 45003 (1989)

Title: General criteria for laboratory accreditation bodies. **Status:** published.

Domains of application:

- certification (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: no direct application. **Validity level:** up to date.

Abstract:

This standard lists the criteria that should be respected by accreditation bodies when they carry laboratory assessment in view of laboratory accreditation.

It includes a description of contractual arrangements between assessors and test labs.

3.89 Document 132: book on Conf Test (1994)

Title: OSI Conformance testing methodology and TTCN.

Origin/Authors: B. Baumgarten A. Giessler

Book information: North - Holland. **Status:** published.

Domains of application:

- testing (ATS, conformance, ICS, IXIT, profile, test reports, TTCN).

Category of information: tutorial. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

The goal of this book is to give an overview, a text book, and a critical review of the ISO/IEC 9646 standard: conformance testing methodology and framework. This enable the readers of this book to understand existing test documents, especially test suites, and to write such documents on their own.

It presents an in-depth treatment of the basic concepts, i.e. of test configurations, the syntax and operational semantics of the test notation TTCN, as well as the practical procedures in testing. Chapter 5 is a large coherent example, based on a simple protocol introduced particularly for the purpose, to demonstrate the various test related documents called for in the standard.

(derived from the book preface).

3.90 Document 133: ITU-T Recom X.724 (1994) 

Title: Information Technology - Open Systems Interconnection - Structure of management information: requirements and guidelines for implementation conformance statement proformas associated with OSI management **Status:** published.

Domains of application:

- specification (ICS, Network management);
- testing (ICS, Network management).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to ISO/IEC 10165-6

Twin document: 46

3.91 Document 134: ISO/IEC IS 10165-4 (1992)

Title: Structure of Management Information: Guidelines for the Definition of Managed Objects (GDMO).

Origin/Authors: SC21. **Status:** published.

Domains of application:

- specification (Network management).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

See twin document.

Comment: This document is physically identical to X.722.

Twin document: 42.

3.92 Document 138: ITU-T Recom X.208 (1989) 

Title: Specification of abstract syntax notation one (ASN.1). **Status:** published.

Domains of application:

- specification (ASN.1);
- testing (ASN.1).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: Shall be applied. **Validity level:** up to date.

Abstract:

This recommendation/standard presents the ASN.1 standard notation for the definition of data types, values and constraints on data types. A data type is a class of information (numeric, textual, ...). A data value is an instance of such a class. This document defines several basic types and their corresponding values, and rules for combining them into more complex types and values.

The ASN.1 notation applies whenever it is necessary to define abstract syntax of information; it is applicable particularly but not exclusively to application protocols.

The use of ASN.1 (syntax notation for abstract syntaxes) does not imply the use of any particular encoding rules.

Comment: This document is aligned with ISO/IEC 8824 initial version. A more recent version of ASN.1 was published as X.680 (1994) by ITU-T or ISO/IEC 8824 (same number as the former version in ISO/IEC). This 1988 version is the one supported when using ASN.1 with TTCN.

3.93 Document 139: CEC Council Directive 93/68/EEC (Jul 1993)

Title: Council Directive of 22 July 1993. **Status:** published.

Domains of application:

- regulation (general);
- testing (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This directive concerns affixing and use of CE marking of conformity on industrial products regulated by 12 EC.

Comment: Often referred to as the "CE Marking directive".

3.94 Document 140: CEC Council Directive 93/97/EEC (Oct 1993) 

Title: Council directive of 29 October 1993 in respect of satellite earth station equipment

Status: published.

Domains of application:

- regulation (general);
- testing (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

Not available

Comment: Often referred to as the "Satellite directive".

3.95 Document 141: CEC Council Directive 85/C136/01/EEC (1985)

Title: The new approach. **Status:** published.

Domains of application:

- regulation (general);
- testing (general).

Category of information: reference. **Audience:**

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

Not available.

3.96 Document 142: ETSI book HLTF (Jun 1995)

Title: Making International Standards Happen First in Europe, Decisions of the ETSI General Assembly on the future of telecommunications standards making in Europe. **Status:** published.

Domains of application:

- all ETSI deliv. (general).

Category of information: study paper. **Audience:** all.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

Not available.

3.97 Document 143: ITU-T Recom Z.106 (1996)

Title: Common interchange format for SDL. **Status:** published.

Domains of application:

- specification (SDL/tool).

Category of information: reference. **Audience:** confirmed.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This Recommendation defines the Common Interchange Format (CIF) of CCITT's Specification and Description Language (Recommendation Z.1 OO - SDL). The CIF is intended for the interchange of graphical SDL specifications (SDL-GR) made on different tools that do not use the same storage format. Currently, the textual representation of SDL (SDL-PR) is used to interchange specifications with the disadvantage that all graphical information is lost making the same specifications often look very different in different environments. With the CIF, this disadvantage is reduced to a minimum, as it contains most of the graphical information. The CIF will improve the independence from specific tool vendors and will allow standard bodies to accept specifications in SDL-CIF irrespective of the tool they use for their internal work. This will also improve productivity by allowing specifications to be made on the accustomed tool. All SDL tool vendors are encouraged to provide facilities for importing and exporting SDL-CIF.

3.98 Document 144: ETSI Council Directive 85/374/EEC (25/07/85)

Title: Council directive of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products. **Status:** published.

Domains of application:

- regulation (general).

Category of information: reference. **Audience:** specialist.

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

This Directive states that the producer (manufacturer, importer, etc.) of a product or part thereof is liable for damage caused by a defect in his product. The onus is on the injured party to prove the damage, the defect and that the defect caused the damage.

Comment: Often referred to as the "Liability directive".

3.99 Document 146: ETSI book (1996)

Title: Making Better Standards Practical ways to greater efficiency and success A guide from Technical Committee MTS.

Origin/Authors: MTS. **Status:** published.

Domains of application:

- quality (bibliography, general);
- specification (bibliography, general);
- testing (bibliography, general);
- validation of specs (bibliography, general).

Category of information: study paper. **Audience:**

Applicability in ETSI: relevant. **Validity level:** up to date.

Abstract:

Making Better Standards (MTS Book), Extract from Forward.

In order to give some insight into our activities and methods, MTS has decided to write this book which focuses on technical quality of standards. It is intended for the widest possible audience, whether involved in standardization or not. It has been written by experts with a sound background in telecommunications and very familiar with the reality of ETSI's work.

It presents in simple but precise terms the main methodological issues and concepts which are currently considered relevant to the future of standardization. It discusses in particular the concepts of Standards Quality and Standards Validation, the role and contribution of Conformance and Interoperability Testing, new emerging approaches to testing such as the "Network Integration Testing" methodology, and the pros and cons of using formal notations such as SDL, ASN.1 and TTCN. We believe it can help non-specialists achieve a better understanding of the benefits and costs associated with such activities.

Comment: Popularly known as the "MTS Book".

History

Document history	
November 1996	First Edition