ETSI TECHNICAL COMMITTEE REFERENCE TECHNICAL REPORT

TCR-TR 006

October 1992

Source: ETSI TC-ATM

Reference: ATM (92) 79

ICS: 33.020, 33.040.40

Key words: Conformance testing, certification of conformity

Advanced Testing Methods (ATM); ETSI and certification in telecommunications Overview of outstanding issues and some recommendations

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Foreword

This Technical Committee Reference Technical Report (TCR-TR) was prepared by the Advanced Testing Methods (ATM) Technical Committee of the European Telecommunications Standards Institute (ETSI). It was first agreed upon by the 14th ETSI Technical Assembly and given the classification of TCR-TR by the 12th Technical Committee Chairmen's co-ordination meeting (TCC).

A TCR-TR is a deliverable for use inside ETSI which records output results of ETSI TC or STC studies which are not appropriate for European Telecommunication Standard (ETS), Interim European Telecommunication Standard (I-ETS) or ETSI Technical Report (ETR) status. They can be used for guidelines, status reports, co-ordination documents, etc. They are to be used to manage studies inside ETSI and shall be mandatorially applied amongst the concerned TCs. They shall also be utilised by the TC with overall responsibility for a study area for co-ordination documents (e.g. models, reference diagrams, principles, structures of standards, framework and guideline documents) which constitute the agreed basis for several, if not all, TCs and STCs to pursue detailed standards.

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1 Introduction

Recently, there has been significant progress in Testing and Certification for both Information Technology (IT) and Telecommunications.

The main events may be summarised as follows:

1.1 The European Organisation for Testing & Certification (EOTC) has been set-up. It provides a global framework organised in sectoral and specialised Committees. Even if designed for the voluntary sector, the framework is declared by the CEC to be flexible enough to also be able to cover the requirements of the regulated (e.g. Directive based) sector.

1.2 In the IT field, the European Committee for IT Testing and Certification (ECITC) has been created under the auspices of CEN/CENELEC/CEPT (now CEN/CENELEC/ETSI) and is currently operational. They have complete rules and criteria for accepting and promoting Agreement Groups, a few of these have already been established. ECITC covers Testing & Certification aspects for standards under the ITSTC programme scope. This includes a number of standards of interest to ETSI and in whose development ETSI is actively supporting.

In December 1991, ECITC was accepted by EOTC as the IT Sectoral Committee.

1.3 A second Directive on Telecommunications Terminal approval (91/263) has been issued which is introducing changes in the regulated area. The concept of a Common Technical Regulation (CTR) is identified, with the approach that a CTR is to be defined as a subset of voluntary standards. The responsibility of finally deciding on the content of a CTR is assigned to a new Committee, the Approvals Committee for Telecommunications Equipment (ACTE), where all the interests have to be represented. A new role and structure of the Technical Recommendations Application Committee (TRAC) has been defined in the process of CTR development.

1.4 In November 1991, following a study on Certification in Telecommunications carried out by an ECTRA Project Team, the Association of Designated Laboratories and Notified Bodies (ADLNB) was created. The definitions used for the designation of participating bodies have to be intended according to the 1st Terminal Approval Directive (86/361).

This organisation performs as an Agreement Group, where the members join to operate a mutual recognition scheme for Test Reports and Certificates of Conformity. At the same time, as the organisation concept is to include all Notified Bodies and Designated Laboratories, it tends to act in practice as a sector co-ordinating committee.

A European harmonised Certification Process for Telecommunications is clearly an objective of utmost importance for all interested parties. In order to determine which contribution ETSI should bring in the establishment of such a process and in its optimization with respect to the overall system, a review of its main elements is made in this TCR-TR.

The process has four main components: political, organisational, technical and operational. In the following these are briefly introduced and some recommendations for ETSI actions are identified (the recommendations are prefixed by the letter "R" followed by its number, the text is shown in bold).

2 The political framework

In the regulated area, the framework is defined by the Directives and the responsibilities are with the Commission and the Member States.

The 2nd Directive on Terminals approval identifies the roles of the interested parties in the development of CTRs and in the mutual recognition of conformity.

The role of ETSI is clearly the development of technical standards (ETSs) from which technical regulations (CTRs) will be extracted. The details are defined in the appropriate agreements established with TRAC.

Considering the wider context, which includes voluntary Certification, the framework is currently in its establishment phase.

EOTC is now operational as the umbrella organisation. Key issues still under discussion are:

a) the role, if any, of EOTC in the regulatory field in general and in Telecommunications in particular;

b) the representation of Telecommunications both in the Council management bodies and as a sector in the structure.

R1. ETSI should not be involved in issue a), which is a matter for the Regulators and the Commission.

R2. ETSI should have, as a standards body, the same rights and status in the management structure of EOTC as the other European Standards Bodies.

There is clearly a wide commonality, in particular from the technical point of view, between IT and Telecommunications Testing and Certification, as it can be realized referring for example to the M-IT-02 joint programme for Functional Standards. In the voluntary sector this has already been taken into account e.g. in ECITC.

Anyway, also including the regulated sector, the process of establishing a co-ordinated or integrated Certification structure is much more complex and, in any case, cannot be forced upon the interested parties. These should progressively consolidate their views and practices and build up mutual confidence in order to be able to create an efficient common system.

Attention should be concentrated on overlapping areas where co-ordination should be established (similarly to what has been done in the M-IT-02 standard development programme).

In particular, adoption of common rules, procedures and criteria with the IT voluntary Sector (i.e. ECITC) should be strongly recommended to ease the management of common areas and prepare further convergence.

R3. ETSI, as a standard organisation being in a neutral position, should use its best offices to act as a catalyst for facilitating the convergence process to start and to grow according to the interests of its Members and of the Telecommunications community.

3 Organisational aspects

They are direct consequence of the decisions on the global framework. The final organization for a Certification Structure will necessarily come out from the evolution of existing structures and will be determined by the interested parties according to the principles established by EOTC about openness, representation, etc.

R4. Whatever the Certification structure and organisation will be, ETSI will have the responsibility to provide the technical basis for Certification, i.e. testing standards. Therefore, an observer status in the relevant organisations (e.g. currently in ADLNB) would be useful to co-ordinate the requirements of the Testing and Certification process and the test standards development activity.

4 Technical aspects

This is the area where a primary responsibility for ETSI, as a standards making body, exists.

The following elements of the technical component of the Certification Process have to be considered.

4.1 Accreditation

In order to have a harmonised multi-sectorial approach to accreditation:

R5. ETSI should endorse the EN 45000 series of standards.

This endorsement means that no special requirement would be expressed for testing laboratories and certification bodies as far as the Telecommunications standards are concerned.

4.2 Test specifications standardisation

This is clearly under the full responsibility of ETSI and currently represents a major portion of the ETSI Work Programme (EWP).

If a harmonised European Certification System has to exist, Conformance Testing standards have necessarily to be developed by ETSI for each standard. This is particularly important for standards (or parts of them) representing a technical regulation. Otherwise, testing would become a "local" process making harmonisation and mutual recognition a very difficult objective.

Moreover, the experience shows that the development of a Conformance Testing standard after the reference standard has been finalised is a painful process for a number of reasons.

R6. At least in the long term, ETSI should establish a working practice where any ETS which is produced contains all relevant specifications for assessing Conformance to it. These should cover:

- **Conformance requirements explicitly and precisely stated;**
- Test suites and test selection procedures;
- Test report proforma(s).

All the tests in a test suite whose verdict is conditional to obtain a certificate of conformity in the regulated context should be properly marked and the acceptable results should be explicitly specified.

Another essential aspect is the maintenance process of a Conformance Testing standard. Feedback will come from a number of sources (Test houses, certifiers, accreditors, tool developers and from use in the field) and needs to be properly managed as failures in the system may severely affect the market.

R7. ETSI should develop procedures to effectively manage maintenance of Conformance Testing standards. For each standard a contact in the ETSI Secretariat should be appointed to collect, route and control handling of defect reports in tight co-operation with the responsible TC.

Moreover, the practical operation of Testing & Certification will inevitably lead to conflicts of interpretation among the involved parties. In some circumstances, it may happen that controversies cannot be solved amicably and hence there is only a possibility to look for the interpretation of the standardiser.

R8. ETSI should provide procedures and support for the arbitration of technical disputes on the interpretation of standards and related Conformance Testing specifications. Requests should be addressed to the Secretariat and channelled to the appropriate TC/STC for assessment.

4.3 Test tools

The development of the technology needed to perform Conformance Testing according to ETSI standards is clearly outside the scope of ETSI. However, test tool characteristics may be, in some circumstances, a subject for ETSI standardisation.

Moreover, methods to assess the technical equivalence of different tools intended for implementing the same Conformance Testing standard could also, potentially, be a subject for ETSI standardisation.

Obviously ETSI will not have any responsibility for approving specific test tools as being adequate for testing conformance to ETSI standards.

R9. The ETSI role in standardisation of test tool related aspects will be defined, according to normal procedures, by the interest of its members and the requirements identified by the relevant TC/STC.

4.4 Certification

Certification will be operated by the appropriate Notified Bodies and accredited Certification Agencies. Anyway, certification has specific requirements about the technical information that must be provided in, or together with, the test report, to be reflected in the Certificate of Conformity. Some technical criteria in general are also needed to interpret the results e.g. in terms of "levels" of conformance.

R10. ETSI TC/STC's developing Conformance Testing standards should establish technical contacts with bodies operating Telecoms Testing and Certification (e.g. ADLNB, ECITC Agreement Groups, etc.) to offer the support needed.

5 Operational aspects

Operation of Conformance Testing and Certification has direct impact on the technical tasks of ETSI, as already outlined in Clause 4, from the maintenance point of view.

There are other aspects in Certification of high interest to the market which have been recently discussed in ETSI following recommendations from the SRC on ISDN terminals:

a) marking of conformant products;

b) registration of products certified as conformant;

c) registration of interoperable products.

R 11. In general, these do not appear appropriate for a standards making body and should be left to the Certification Bodies or other suitable organisations which can take the liability associated with such functions.

This is in line with the conclusions of the ad hoc group on this subject let by G. Robin, Vice-Chairman of the ETSI TA.

6 Summary conclusions

ETSI policy on Testing and Certification in Telecoms should be based on the following actions:

1) Use ETSI influence to promote, in agreement with all interested parties (EC, ECTEL, ECTRA, ADLNB, ECITC), the establishment of a Certification Structure for Telecommunications, covering regulatory and voluntary areas, and to define an evolutionary path for achieving convergence of IT and Telecommunication sectors;

2) At the same time, recommend the maximum harmonisation (procedures, criteria, rules) with those developed in the voluntary IT sector, in order to easily manage common areas (e.g. M-IT-02), avoid unnecessary duplication and prepare the grounds for further optimisation;

3) Concentrate efforts on the development of technical standards for Testing and Certification, with a substantial improvement of the complete process (e.g. in terms of consistent methodology and effective maintenance);

4) Leave operational aspect of Certification (marks, registers) to specialised agencies.

The launch by the Commission of Mandate BC-IT-226, currently out for organising a planning Project Team under CEN/ECITC co-ordination, may represent a good framework to start concrete actions.

History

Document history	
October 1992	First Edition
March 1996	Converted into Adobe Acrobat Portable Document Format (PDF)