


ITU-D Regional Development Forum for the Europe and CIS Region

**“NGN and Broadband, Opportunities and Challenges”
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Outcome of WTSA-08 Resolutions: the Resolution 76


**Georges Sebek
Counsellor
ITU/TSB**

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WTSA-08 Resolution 76

- Resolution 76 (WTSA-08), Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU mark programme
- New Resolution adopted in Johannesburg, October 2008

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Objectives of Resolution 76

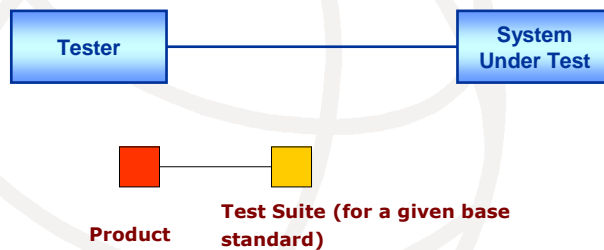
- To meet the needs of developing countries for conformance and interoperability testing
 - ◆ Considering that conformity is a first step to increase the probability of interoperability between different manufacturers, vendors and service providers
 - ◆ Assist in the establishment of laboratories able to carry out tests according to the ITU-T Recommendations requirements and training programmes
- To propose demonstration of conformance to ITU-T Recommendations through a voluntary ITU conformity programme
- To provide increased business opportunities and benefits to both suppliers and customers

Some rationale for Resolution 76

- Some Member States, Sector Members, especially from Developing Countries, and end-users reported on an increase of problems with **supply of poor quality, even dangerous equipment, not conform to standards or not interoperable**, part of which has been identified as **counterfeit**
- Some **Governments** reported on **lack of legal framework** and **effective systems** to ensure that appropriate technical regulations, based on international standards, are in place and enforced in order to meet their obligations to protect the safety of their citizens using telecommunication equipment and services and to meet their requirements for quality of service.
- Developing countries need to be assisted in deploying testing facilities and building capacity facilities in the regions

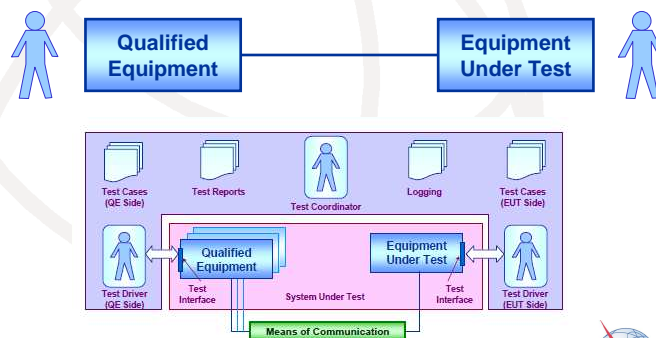
Conformance testing

- Establishes whether or not the implementation of a standard meets the requirements specified in the standard



Interoperability testing

- Establishes whether or not two independent implementations of the same standard can communicate over a specific infrastructure using functionalities prescribed by the standard



Why do we need a common testing methodology?

- All actors must understand each other in all geographical regions and global markets
 - Equipment suppliers
 - Equipment buyers
 - Test laboratories
 - Accreditation organizations
 - Certification organizations
- Test results must have the same meaning in all global regions
- Test results must be accepted in all global regions
- Time to market: equipment must be tested only once without the need to retest for different markets

Why conformance to standards is important?

- Equipment from different vendors conforming to the same standards have a higher likelihood of interoperability
- Different vendors can independently implement standards with higher assurance of product interoperability
- Equipment buyers can buy products that will interoperate with previously purchased equipment from different supplier

Why interoperability is important?

- The ultimate objective is that independent implementations of the same standard interoperate
- Conformance improves the chances of interoperability while interoperability testing checks at a user level, and for expected applications if interoperability, i.e., communication has been achieved
 - ◆ Recommendations often contain options - for interoperability, both implementations need to support the same option choices. Two implementations can conform to a Recommendation (pass conformance testing) but not interoperate. This is where completed PICS proformas help to identify such situations up front

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Conformance and interoperability are complementary

- Conformance to the standard is achieved first and should not be compromised during Interoperability testing
- Without conformance, two implementations can be made to interoperate by destroying interoperation with all other systems
 - ◆ Refer to supplemental material for references you need to develop high-quality Recommendations and test specifications

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Resolution 76 resolves

1. that ITU-T study groups develop the necessary conformance testing ITU-T Recommendations as soon as possible
2. that ITU-T Recommendations to address interoperability testing shall be progressed as soon as possible
3. that ITU-T in collaboration with the other ITU sectors as appropriate, shall develop a programme to:
 - assist developing countries in capacity-building and training opportunities in conformity and interoperability testing
 - assist developing countries in establishing regional or sub-regional centres suitable to perform conformity and interoperability testing as appropriate
4. that conformance and interoperability testing requirements shall provide for verification of the parameters defined in ITU-T Recommendations

Resolution 76 instructs the study groups

1. to identify as soon as possible those existing and future ITU-T Recommendations candidates for interoperability tests, e.g., interoperability of NGN equipment, terminals, audio video codecs, access and transport network that are capable of providing end-to-end interoperable services on a global scale
2. to prepare those ITU-T Recommendations with a view to conducting conformity and interoperability tests as appropriate

Resolution 76 instructs the Director of TSB

1. in cooperation with BR and BDT, to conduct exploratory activities in each region to identify and prioritize the problems faced by developing countries related to achieving interoperability of ICT equipment and services
2. based on results of instructs 1 above, to study the items below:
 - a) the overall effect on ITU and manufacturers
 - b) legal and national and international regulatory implications
 - c) cost of set up of facility
 - d) location of testing facility
 - e) measures to be taken to build the necessary human resource capacities

Resolution 76 instructs the Director of TSB

3. to carry out the necessary studies with the view to introduce the use of ITU Mark as a voluntary programme permitting manufacturers and service providers to make a visible declaration that their equipment conforms to ITU-T Recommendations, and to increase the probability of interoperability; and to consider its possible application as an indication of a degree of interoperability capability in the future
4. to study the financial and legal implications for the ITU-T and ICT industries, and all other concerns raised with regard to this proposal regarding the possible introduction of the ITU Mark

Resolution 76 instructs the Director of TSB

5. to involve experts and external entities as appropriate
6. to submit the result of these studies to Council-09 for its consideration and required actions

Resolution 76 invites

- the Council:
 1. to consider the report of the Director of TSB above,
 2. to report as appropriate on this matter to the 2010 Plenipotentiary Conference taking into account Resolution 158 (PP-06) "Financial issues for consideration by the Council"
- Member States and Sector Members:
 1. to contribute to the implementation of this resolution;
 2. to encourage national and regional testing entities to assist ITU-T in implementing this resolution.

ITU – IEC - ISO

- In June 2008, the 7th meeting of the [World Standards Cooperation](#) (WSC) recognized:
 - ◆ **global conformity assessment** as an accepted way of demonstrating that a product or service adheres to an International Standard, and its increasing importance in the context of the commitments of WTO Member States under the [TBT](#)* (Technical Barriers to Trade) agreement
 - ◆ That the **promotion of standardization** would facilitate global trade and provide tangible benefits to users of both standards and conformity assessment

* Technical regulations and product standards may vary from country to country. Having many different regulations and standards makes life difficult for producers and exporters. If regulations are set arbitrarily, they could be used as an excuse for protectionism. The Agreement on Technical Barriers to Trade tries to ensure that regulations, standards, testing and certification procedures do not create unnecessary obstacles



Global Standards Collaboration (GSC)

- The mandate of GSC is to provide a venue for the leaders of the Participating Standards Organizations and the ITU to:
 - ◆ Freely exchange information on the progress of standards development in the different regions and the state of the global standards development environment
 - ◆ Collaborate in planning future standards development to gain synergy and to reduce duplication.
- Further, the mandate of GSC is to provide a venue for the leaders of the Participating Standards Organizations to:
 - ◆ Support the ITU as the preeminent global telecommunication and radiocommunication standards development organization
- GSC currently comprises 10 members (Participating Standards Organizations and ITU)

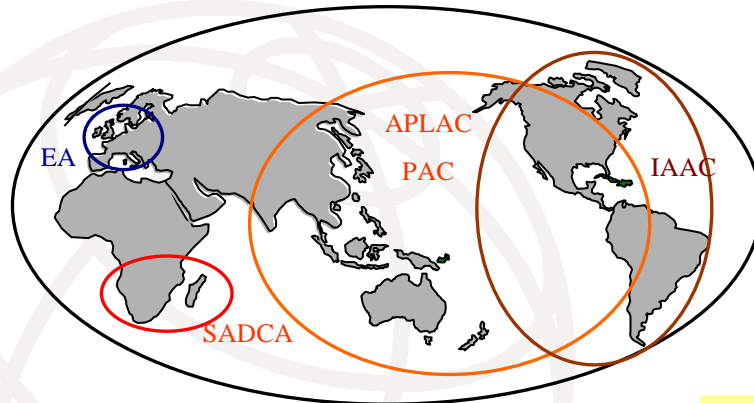
GSC-14 resolution on interoperability

[Resolution GSC-14/28](#) (17 July 2009): Interoperability

- recognizes that various mechanism are available to enhance interoperability, including developing “interoperable standards”, providing implementation guidelines, hosting interoperability events and human capacity building
- considers interoperability as an explicit objective of standards development
- Considers that compliance with technical standards can increase the probability of end-to-end interoperability but will not guarantee interoperability
- Resolves:
 - ◆ to exchange information among PSOs which have experience in interoperability.
 - ◆ to encourage PSOs and related Fora/Consortia to discuss issues related to interoperability

ILAC International Laboratory Accreditation Cooperation

IAF International Accreditation Forum



Source ILAC

APLAC	Asia Pacific Laboratory Accreditation Cooperation
EA	European cooperation for Accreditation
IAAC	Inter-American Accreditation Cooperation
SADCA	Southern African Development Cooperation for Accreditation

Preliminary results from studies on implementing Resolution 76 (1)

- ITU/TSB explored and progressed a number of actions. Preliminary results:
 - Need for testing for conformity assessment and interoperability as part of "**Certified/Accredited**" voluntary programme to demonstrate compliance of products to standards
 - Need to establish **reciprocal international or peer-to-peer recognition** of laboratories and certifiers to reduce costs of multiple repeated testing and creation of barriers to trade (ILAC, IAF): **two or more partners recognize respective laboratories to have equivalent competence to carry out the same conformity assessment tasks**

Preliminary results from studies on implementing Resolution 76 (2)

- **Industry reaction?** already involved in interoperability events (OMA, WiFi Alliance, WiMAX, IEEE-ICAP, ...)
- Positive impact on
 - **ITU** (mission, Recommendations, promotion)
 - **Industry** (costs, widen market ↔ MRAs, no TBT issues)
 - **End users** (Regulators, QoS, interoperability)
 - **Developing countries** (capacity building opportunities, laboratories, bridging standardization Gap, testing culture)

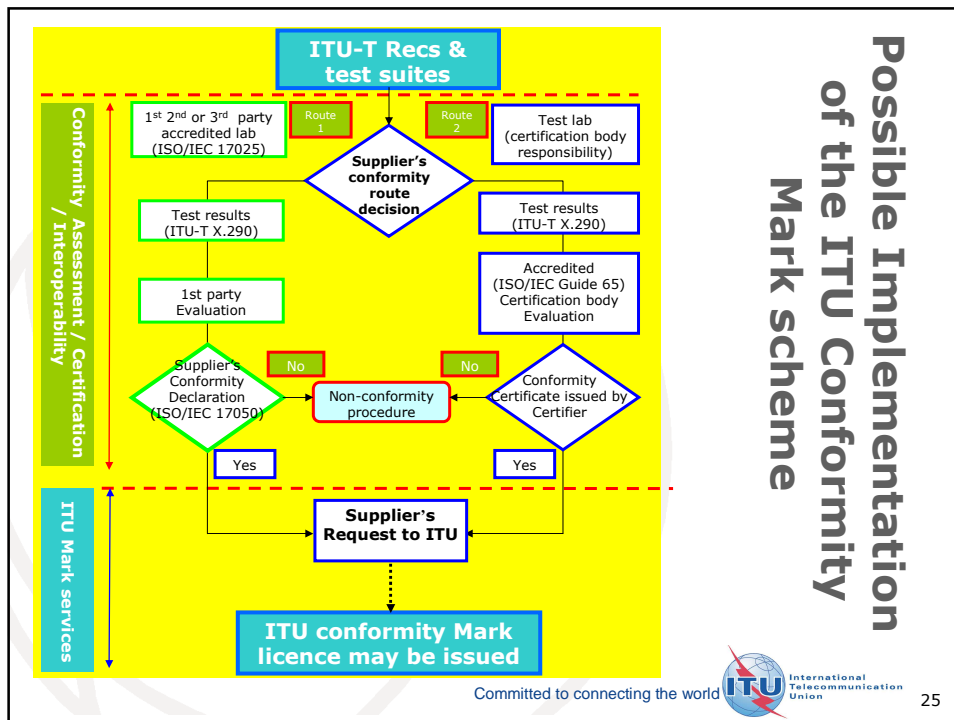
Some fundamental concepts

- The **vendor's** participation in the programme is on a voluntary basis
- **Conformity tests** may be performed in 1st, 2nd, 3rd party laboratories
- Either **vendor self declaration** using accredited 1st party test laboratory, or **accredited certification** using 1st 2nd or 3rd party test laboratories
- ITU-organized **interoperability events**
- ITU-maintained public **database** of equipment/services **conforming with ITU-T Recommendations**
- ITU-maintained public **database** of equipment/services shown to **interoperate at ITU interoperability events**
- **Databases enable vendors to make reference** and/or to **give visibility to ITU** when conformity and, when possible, interoperability requirements, have been demonstrated in the context of the scheme
- Will **stimulate and develop the culture of conformance assessment testing, capacity building and surveillance worldwide** in particular in developing countries

Mutual recognition (MR) agreements / arrangements

- **MR Agreements among governments** require legislation, complexity of governmental negotiations and parliamentary process
- **MR Arrangements among non-governmental actors** function on the basis of peer assessment, not accreditation, but achieve the same effects: more effective in most cases. Each laboratory in a system is assessed by a team of its peers (other laboratories) and each Certification Body (CB) similarly
- The IEC's conformity assessment (CA) Systems (3rd-party certification schemes) are all MR Arrangements. They require all their members compulsorily to accept each other's certificates and test results
- Most of the laboratories and CBs concerned are also accredited

Possible Implementation of the ITU Conformity Mark scheme



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Director of TSB report to Council-09

- Consultation with Experts and External Organizations (IEC, ISO, TIA, ANSI, ETSI, Regulators, Laboratories, Governments)
 - ◆ ITU: TSB, BDT, BR and Legal Affairs consultation
 - ◆ Representatives of Administrations
 - ◆ Experts in training, testing, certification, market analysis
 - ◆ Representatives of Regulators and Industry
 - ◆ Participation in regional meetings
 - ◆ Consultation meeting Geneva 20-21 July 2009

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Conclusions

- Resolution 76 meets the needs of Developing Countries for conformance and interoperability
- Conformity is a first step to increase the probability of interoperability between different manufacturers, vendors, service providers
- Identification of laboratories able to carry out tests according to the ITU-T Recommendations requirements and training programs
- Voluntary based ITU conformity programme as a demonstration of conformance to ITU-T Recs.
- ITU interoperability events
- Increased business opportunities and benefits to both suppliers and customers, positive industry response
- Need for a surveillance strategy
- ITU public databases to be created

Thank you for your attention

Supplemental material

- All you need to develop high-quality Recommendations and test specifications
- Public information on EA, European cooperation for Accreditation

Conformance and Interoperability Testing Methodology Recommendations

- X.290, General concepts
- X.291, Abstract test suite specification
- X.292, The Tree and Tabular Combined Notation (TTCN) (Superseded by Z.160/170 series)
- X.293 - Test realization
- X.294 - Requirements on test laboratories and clients
- X.295 - Protocol profile test specification
- X.296 - Implementation conformance statements
- X.Sup4, Supplement on generic approach to interoperability testing
- X.Sup5, Supplement on interoperability testing framework and methodology

Testing and Test Control Notation (TTCN-3)

- Z.161, TTCN-3 core language
- Z.162, TTCN-3 tabular presentation format
- Z.163, TTCN-3 graphical presentation format
- Z.164, TTCN-3 operational semantics
- Z.165, TTCN-3 runtime interface
- Z.166, TTCN-3 control interface
- Z.167, TTCN-3 mapping from ASN.1
- Z.168, TTCN-3 mapping from CORBA IDL
- Z.169, TTCN-3 mapping from XML data definition
- Z.170, TTCN-3 documentation comment specification

Specification and Description Language

- Z.100, Overview of SDL-2008
- Z.101, Basic SDL-2008
- Z.102, Comprehensive SDL-2008
- Z.103, Shorthand notation and annotation in SDL-2008
- Z.104, Data and action language in SDL-2008
- Z.105, SDL-2008 combined with ASN.1 modules
- Z.106, Common Interchange Format for SDL-2008

Abstract Syntax Notation One (ASN.1)

- X.680, Specification of basic notation
- X.681, Information object specification
- X.682, Constraint specification
- X.683, Parameterization of ASN.1 specifications
- X.690, Specification of Basic Encoding Rules (BER), Canonical Encoding Rules and Distinguished Encoding Rules
- X.691, Specification of Packed Encoding Rules
- X.692, Specification of Encoding Control Notation
- X.693, XML encoding rules
- X.694, Mapping W3C XML schema definitions into ASN.1
- X.695, Registration and application of PER encoding instructions

Supporting Recommendations

- Z.120, Message sequence chart (MSC)
- Z.150, User Requirements Notation - Language requirements and framework
- Z.151, User Requirements Notation - Language definition
- Z.110, Application of formal description techniques
- Z.450, Quality aspects of protocol-related Recommendations

The European cooperation for Accreditation

- EA created as a legal entity, as not-for-profit association registered in the Netherlands in June 2000
- 35 Full Members representing 33 European economies
- 18 Contracts of Cooperation signed with non EU / EFTA Accredited Bodies (5 ABs covered by the European Neighborhood Policy, 4 ABs located in Europe, Russia and 8 ABs located outside Europe)
- Out of these contracts, 10 have turned into a bilateral agreement with EA
- EA is an active Member of ILAC and IAF as a recognized regional cooperation

Purpose of EA

- The European cooperation for Accreditation (EA) is the association of the national accreditation bodies that provide accreditation for the following conformity assessment activities:
 - ◆ Calibration
 - ◆ Testing
 - ◆ Inspection
 - ◆ Certification of quality, environmental management systems
 - ◆ Certification of products
 - ◆ Certification of persons
 - ◆ EMAS verifiers

EA MLA Signatories

Austria	France	Malta	Slovenia
Belgium	Germany	Netherlands	Spain
Bulgaria	Greece	Norway	Sweden
Czech Rep.	Ireland	Poland	Switzerland
Denmark	Italy	Portugal	Turkey
Estonia	Latvia	Romania	United Kingdom
Finland	Lithuania	Slovakia	

CONTRACTS OF COOPERATION with DA (Albania); NATA (Australia); JAS-ANZ (Australia - New Zealand); BATA (Bosnia and Herzegovina); INMETRO (Brazil); HKAS (China); ISRAC (Israel); JAC (Jordan); NCA (Kazakhstan); IANZ (New Zealand); CAECP (Republic of Moldova); ATCG (Republic of Montenegro); STCIS (Russia); ATS (Serbia); SAC/SPRING (Singapore); SANAS (South Africa); TUNAC (Tunisia); NAAU (Ukraine)

Standards for accreditation

