



The status of the implementation of ITU C&I Programme (Pillar 1 and 2)

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C&I basic terms



- **Conformity assessment (CA)** – the process used to demonstrate that a product, service or system conform to specified requirements. – ISO/IEC 17000
 - **1st party CA** – manufactures' self-declaration of conformity
 - **2nd party CA** - by user, e.g. purchaser, importer, retailer...
 - **3rd party CA** – ISO/IEC 17025, 17065, etc.
- **Interoperability** – the ability of two or more systems or applications to exchange information and to mutually use the information that has been exchanged. - Rec. ITU-T Y.101

Conformance increases the probability of interoperability, but CAN NOT guarantee

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C&I Issues



Lack of necessary standards and/or standard enforcement leads to:

- poor interconnection and interoperability
- damage reputation of company
- damaged reputation of new service/technology
- jeopardized competition by dominant market player
- vendor locked telecom operators
- redundant testing is a burden to both vendors and operators
- trade barrier for vendors to access new market
-

Why ITU C&I Programme



- **ITU-T's Mission**
 - Develop interoperable, non-discriminatory and demand-driven international standards for International telecommunication
- **Conformity to ITU Recommendations will**
 - Enable telecom operators, vendors, end users, and regulators worldwide to have confidence that products sourced in global market meet international telecommunication requirements
 - Improve interconnection and interoperability
 - Reduce trade barrier and improve transparency to market access
 - increased choice from multiple manufacturers/service providers
 - Help telecom operators to reduce time of new service provision
 - Help vendors to save cost on repetitive testing/certification for same product, thus reduce time to market

ITU C&I Mandate



- **PP Resolution 177:** (PP-14) "Conformance and interoperability"
- **WTDC Resolution 47:** (WTDC-10, WTDC-14)
"Enhancement of knowledge and effective application of ITU Recommendations in developing countries, including conformance and interoperability testing of systems manufactured on the basis of ITU Recommendations"
- **WTSA Resolution 76:** (WTSA-08, WTSA-12)
"Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU mark programme"
- **RA Resolution 62:** (RA-12)
"Studies related to testing for conformance with ITU-R Recommendations and interoperability of radiocommunication equipment and systems"
- **ITU Council Decisions:** (2009, 2010, 2011, 2012, 2013, 2014)

"4 Pillars" of ITU C&I Programme



The Standardization Sector side

- ❖ Pillar 1: Conformity Assessment
- ❖ Pillar 2: Interoperability Events

The Development Sector side

- ❖ Pillar 3: Capacity building
- ❖ Pillar 4: Establishment of test centres and C&I programmes in developing countries



Pillar 1 as defined in Resolution 177 (ITU PP-14)



- mentioned a pilot ITU Conformity Database as informative only**
- invited ITU Sector Members to populate the pilot conformity database with details of products tested to applicable ITU-T Recommendations**
- Instructs the Director of TSB to continue to carry out pilot projects for conformity to ITU-T recommendations**



Pillar 1 Objectives



- 1. Produce interoperable standards - ITU-T SGs are identifying ITU-T Recommendations with demonstrated market need for C&I testing and developing testing specifications if needed, in collaboration with partner SDOs if appropriate**
- 2. Promote conformity assessment on products/services against ITU-T Recommendation(s) - ITU Conformity database**



- **ITU-T to run a pilot of the conformity assessment programme for key technologies**
- **ITU-T study groups to identify further technologies (ITU-T Recommendations) for C&I**
- **ITU Secretariat invite labs/forums/consortia/SDOs to join the C&I Programme**
- **ITU Secretariat to consult study groups towards identifying and suggesting topics for future events**
- **ITU-T Study Groups to develop system roadmaps, identify and define the interfaces across which interoperability is needed**
- **ITU-T Study Groups should identify or develop use cases, application profiles and test plans to use for interoperability testing for Recommendations**

The key outcomes related to Pillar 1



ITU-T SG11 maintains:

- ✓ **list of pilot projects** of conformity assessment
(<http://www.itu.int/go/pilot-projects>) (e.g. M.3170, G.hn)
- ✓ **living list of key technologies** suitable for C&I
(<http://itu.int/go/key-technologies>)
- ✓ **C&I reference table of ITU-T Recs.**
(<http://itu.int/go/reference-table>)

New SG11 work item **Q.TL-rec-pro "Testing Laboratories recognition procedure"**. Q11/11 is going to discuss it on **17 December 2014**.



Pilot projects of conformity assessment

- ✓ **G.hn conformance testing (SG15/SG11)**
[SG15 - LS 147](#); [SG15 TD-WP1-380](#)
- ✓ **Conformance testing of the Multi-technology network interface in accordance with series of Recs. ITU-T M.3170.x (SG2)**

<http://itu.int/go/pilot-projects>



Pilot project on ITU-T M.3170.x

First ITU-T C&I Pilot project

Testing scope: conformance testing of the Multi-technology network interface in accordance with series of Recs. ITU-T M.3170.x

Involved companies: China Telecom, FiberHome, ZTE, CTTL, BUPT, etc.

Goal: improvement of an interconnection between EMS, NMS, and OSS for the MTNM interface

Short-term strategy:

- ✓ **harmonize requirements based on the inputs provided by vendors, labs, operators**
- ✓ **select an appropriate TL that has a competence to perform the relevant tests**
- ✓ **perform testing at the appointed TL**
- ✓ **populate ITU product conformity DB**

<http://itu.int/go/pilot-projects>

Conformity assessment of ICT equipment based on SIP-IMS profile against ITU-T Recommendations



- Define the requirements for Network and User sides for SIP-IMS profile
- Develop the conformance tests specifications for SIP-IMS profile
- Develop conformance tests specifications for Integrated Access Devices (IAD)
- RCC region is going to establish the alliance of operators which is going to use the ITU-T Recommendations on SIP-IMS profile as a basic requirement for user's equipment

Telecom operators are invited to join this activity in SG11 and initiate the relevant ITU test event

The outcome – the list of SIP-IMS based UE which complied with ITU-T Recommendations (e.g. signalling protocol, voice QoS/QoE)

Possible approaches to implement a TL recognition procedure in ITU



Report of the Correspondence Group: [TD 475 \(GEN/11\)](#)

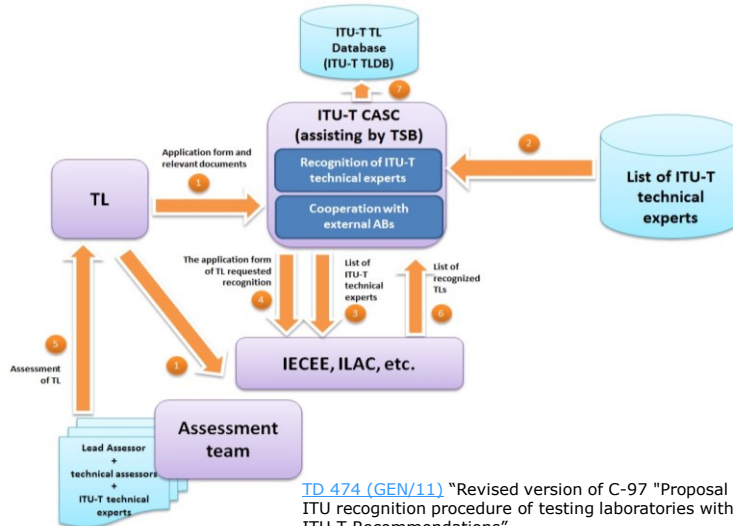
1. For certain ITU-T Recommendations, ITU to join existing schemes, e.g. IECCE as appropriate
2. ITU may have to establish ITU's own TL recognition procedure as deemed necessary in a later stage

Future activities

- ✓ All discussions are under Q11/11 of ITU-T SG11 (Mr Isaac Boateng was appointed as an associated Rapporteur)
- ✓ Next meeting: **Q11/11 E-meeting (17 December 2014)**



TL recognition procedure work flow (under discussion)



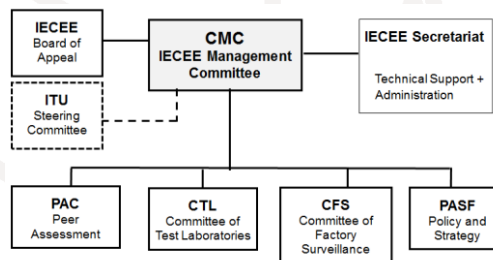
TD 474 (GEN/11) "Revised version of C-97 "Proposal to establish an ITU recognition procedure of testing laboratories with competence in ITU-T Recommendations", 9-16 July 2014



Possible ITU collaboration with IEC/IECEE (PP-14, C63)



- ✓ ITU partner with IEC to conduct a trial of voluntary 3rd party CA of suitable ITU-T Recommendations
- ✓ A team of assessors selected by ITU-T and qualified by IECEE would recognize test labs which qualify for testing specific ITU-T Recommendations. A recognized test lab would then be able to issue certificates
- ✓ An 'ITU steering committee' would be established within the [IECEE organization structure](#)



ITU Activities to combat counterfeiting



- ITU-T PP-14 New Resolution on Combating counterfeit telecommunication/ICT devices which refers to the Resolution 177 (PP-14) on Conformity and Interoperability
- WTDC-14 Resolution 79 “The role of telecommunications/ICT in combating and dealing with counterfeit telecommunication/information and communication devices”
- ITU held an event on combating counterfeit and substandard ICT devices ([17-18 November 2014](#))
- ITU-T SG11 approved a “Technical Report on Counterfeit ICT Equipment”. (Involvement of WTO, WCO, WIPO, MMF, GSMA etc.) [TD-574 R.2 \(GEN/11\)](#)

The key outcomes related to Pillar 2



- ✓ [Conformance & Interoperability event of IMS UNI, IPTV \(Bangkok, Sept. 13\)](#)
- ✓ [Continua Health Alliance Interoperability event on e-health \(Geneva, Oct. 13\)](#)
- ✓ [Performance assessment of mobile phones in conjunction with HFT in a car against Recs. ITU-T P.1100/P.1110 \(May. 14\)](#)
- ✓ [Interoperability of IMS-NNI, IoT \(planned\)](#)

ITU Test Event

Performance assessment of mobile phones in conjunction with vehicle's HFT in accordance with Recs. ITU-T P.1100/P.1110

www.itu.int/go/test-event



Background

Many mobile phones do not work properly with HFT's system and thereby significantly degrading the speech quality of the complete system

Findings

- ✓ an incorrect behavior of the mobile phone in the wireless connection to a vehicle's HFT
- ✓ an unacceptable quality of a voice-call inside the car and outside the car for the conversational partner

Only 30 % of phones passed the tests !!!!!

Key outcomes

- ✓ New web portal describing the existing issues
- ✓ A "white list" of mobile phones recommended by major car manufactures
- ✓ Updated Recs. ITU-T P.1100/P.1110 with the new values of performance

[ITU dedicated web page](#)



Venue: ITU Headquarters
TL: HEAD Acoustics
Date: 12-16 May 2014
Participants: Mercedes-Benz, Volvo, Bosch, Toyota
 Number of tests: 40 (30 phones)
[ITU press-release](#)

Internet speed measurement



ITU-T SG11 Q15/11 "Testing as a service TAAS"

[Q.Int speed test](#) "Unified methodology of Internet speed quality measurement usable by end-users on the fixed and mobile networks"

<http://www.itu.int/en/ITU-T/C-1/Pages/IM/Internet-speed.aspx>

The screenshot shows a webpage with the following sections:

- Background:** The measurement of Internet speed becomes an important matter, which ICT players (e.g. operators, regulators, consumers) are increasingly interested in. It is essential to have a global standardised methodology to carry it out.
- Context:** The Internet provides various ways to access the Internet speed. However, most of them measure the speed between customers and servers, which are not related to the speed of the operator's network. Besides, the Internet speed is also related with the value added in the customer's SLA.
- Actual:** Customers are mostly interested in the measurement of the access speed to a particular Internet service (e.g. music on YouTube, TV on Google TV, web surfing, etc.), as it would allow them to compare the offers from various operators.
- Taking all this into account,** the development of a unified approach to measure the Internet speed would be advantageous. The establishment of such a framework would bring greater consumer confidence in advertised speeds and ensure that accurate comparisons can be made between offerings from different operators.
- The webpage provides all interested parties with ITU-T's relevant activities on Internet speed measurements.**

DESCRIPTION OF ISSUE

As the accessibility of Internet resources is important for consumers, this section contains a description of the current issues of the existing global Internet measurement systems which are not suitable for measuring the customer's SLA.

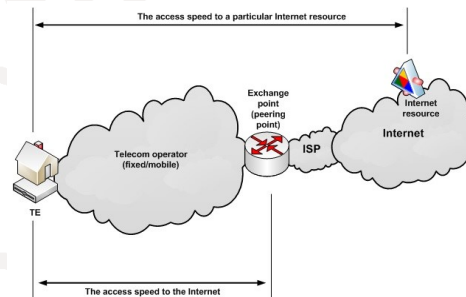
BEST PRACTICE

Some regions and countries have successfully launched their own approaches aiming to evaluate Internet access speed.

The Organization for Economic Co-operation and Development (OECD) has also conducted a study on Internet speed measurement.

HOW TO PARTICIPATE

Experts who are interested in participating in these activities are invited to send contributions to: q15@itu.int. Such contributions should be submitted to the Q15/11 meeting. For more information please contact: ITU-T/SG11/IM/Internet-Speed.



ITU committed to



- **Develop interoperable international telecommunication/ICT standards**
- **Promote conformity to telecommunication/ICT standards**
- **improve international interconnection and interoperability**
- **Reduce global trade barrier, promote market transparency and competition**
- **Facilitate capacity building in developing countries covering most of the key technologies**

Conclusions



- **The living list of ITU-T Recommendations which are suitable for C&I testing can be used by TLs for performing tests at the national/regional level**
- **All interested parties are invited to participate in ITU-T SGs on developing ITU-T Recommendations for which the market requires C&I testing**
- **Interoperability testing events become very popular and can help operators to fix the compatibility issues at the early stage** (interoperability plays a significant role for user's connection and interconnection among telecom operators)
- **Pilot project is one of the tools to verify technologies before implementing in the ICT market**
- **Conformity assessment can play a role in the fight against counterfeit telecommunication/ICT devices**



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Telecommunication
Union



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ADDITIONAL SLIDES



ITU web sources related to C&I Programme

ITU C&I resources

C&I Portal - <http://www.itu.int/en/ITU-T/C-I/Pages/default.aspx>

JCA-CIT - <http://www.itu.int/en/ITU-T/jca/cit/Pages/default.aspx>

SG11 (lead group on testing) - <http://www.itu.int/en/ITU-T/studygroups/2013-2016/11/Pages/default.aspx>



Living lists on the ITU-T C&I Portal (1/3)

<http://itu.int/go/key-technologies>

The living list of Recommendations and related specifications within key technologies suitable for C&I testing

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ITU-T SGs outputs:

Living List of key technologies to be tested on C&I (SG11 output, 25 February - 1 March 2013)

JCA-CIT updates (25 April 2013)

#	Title	Focal Point	Other SDOs	ITU-T SGs	References to SDOs docs	References to ITU-T Recs.
1	Network and equipment performance (Benchmarking)	Martin Brand Vice-chairman of SG11 (Austria) martin.brand@Atelekom.at	ETSI (INT, STQ, MTS)	SG11	ETSI (Requirements) DTR/STQ-207 (draft) ETSI (Test suites) ETSI TR 101 577 TS 186 025-1 TS 186 025-2 TS 186 025-3 TS 186 025-4 TS 186 008-1 TS 186 008-2 TS 186 008-3 TS 186 008-4	ITU (Requirements) Draft Q.392z-1 ITU (Test suites) Q.3930 Q.3931.1 Q.3931.2 Q.3931.3 (draft) Q.3931.4 (draft) Q.3932.1 (draft) Q.3932.2 (draft) Q.3932.3 (draft) Q.3932.4 (draft)
2	QoS/QoE and NP	Martin Brand Vice-chairman of SG11 (Austria) martin.brand@Atelekom.at	ETSI	SG12 SG11	ETSI (Requirements) - - TR 102 775 TS 101 563 TS 102 928 (draft) - -	ITU (Requirements) Q.3925 Y.1542 Y.1543 Y.1541 Y.1541 - Q.MSPQuality Q.NP-req
		Eva Ibarrola (Spain) eva.ibarrola@ehu.es				
		Minrui Shi (China)				



Living lists on the ITU-T C&I Portal (2/3)

<http://www.itu.int/go/pilot-projects>



List of Pilot projects for conformity assessment against ITU-T Recs

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#	Title	ITU-T Recs.	Focal Point	Interested Companies	Motivations	Short-term strategy
1	Conformance testing pilot project on 'Network management interface related Recommendations (ITU-T M.3170 series)'	Recs. ITU-T M.3170 series (M.3170.0, M.3170.1, M.3170.2, M.3170.3)	WANG Zhili (WP22 chair)	Network Operators <ul style="list-style-type: none"> China Telecom Co., Ltd. China Southern Power Grid (China) Vendors <ul style="list-style-type: none"> FiberHome (China) ZTE (China) Integrators <ul style="list-style-type: none"> Beijing Metamet Technologies Co., Ltd. (China) Testing Labs <ul style="list-style-type: none"> Beijing Infotel Network Testing Laboratory (China) China Telecommunication Technology Labs (CTTL) University <ul style="list-style-type: none"> Beijing University of Posts and Telecommunications (BUPT, China) 	<p>Taking into account of the wide adoption and influence in industrial of this series of Recommendations, this Conformance testing project will promote products which are compliant to this series of Recommendations, help operators, vendors, and integrators to implement this series of ITU-T Recommendations and better facilitate the interconnection between EMS, NMS, and OSS for the MTNM interface.</p>	<p>First — gather interested vendors, operators, integrators and others who implement Recs. ITU-T M.3170 series to identify and harmonize their testing requirements.</p> <p>Second — select appropriate testing organization(s) that are competent to perform the conformance testing for the Recs. ITU-T M.3170 series against these testing requirements using agreed test suites.</p> <p>Third — testing organization(s) to test the products which are based on the Recs. ITU-T M.3170 series by agreed test suites (see 1st above).</p> <p>Fourth — populate the ITU-T product conformance database with testing results generated by selected testing organizations which performed testing, and produced conformance testing report in agreed format.</p>

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Living lists on the ITU-T C&I Portal (3/3)

<http://itu.int/go/reference-table>



The reference table of standards are used for C&I assessment

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The living list of technologies to be tested on C&I

List of Pilot projects for conformity assessment against ITU-T Recs

The reference table of standards are used for C&I assessment

SG11 Action plan on C&I

ITU-T meeting schedules on C&I activities

Resolution 76 of WTSA-12 resolves that 'conformance and interoperability testing requirements shall provide for verification of the parameters defined in the current and future ITU-T Recommendations as determined by the Study Groups developing the Recommendations, and for interoperability testing to ensure interoperability taking into account user needs and in consideration of the market demand, as appropriate'.

The C&I Action Plan agreed by Council-12 requests 'ITU-T study groups to identify further technologies for which there is a market demand for a conformity assessment programme and to identify whether test specifications are available and if not, to explore the provision of test specifications. If test specifications are available, they may be tuned into e.g. ITU-T Recommendations or supplements'.

Following the WTSA-12 and Council-12 decisions, SG11 established the SG11 Action plan for implementation of C&I Programme which will help to achieve the goals of Resolution 76 (WTSA-12) and will assist ITU-T SGs in their work concerning the development of ITU C&I Programme within their responsibilities. The Action plan also is aimed at helping developing countries in the implementation of their C&I plans in the regions.

The one of the most important part of the SG11 Action plan is a Reference Table showing list of ITU-T Recs and relevant parameters to be tested for conformity/interoperability and references to the applicable test suites (ITU/other SDOs). These information will be used for filling out the ITU conformity Database by results of conformity assessment against ITU Recs.

The Reference Table is maintained by TSB in accordance with information provided by all ITU-T SGs and JCA-CIT on the SG11 requests with the template is provided in Annex B of SG11 Action plan.

QUICK LINKS

- C&I Portal home page
- ITU C&I databases
- Guidelines and information on C&I
- JCA-CIT
- BOT C&I Activities
- ITU Promotional materials
- TSB Circular 98
- ITU-T SG11 (lead group on testing)

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