



KEY OUTCOMES OF THE IMPLEMENTATION OF ITU C&I PROGRAMME





ITU Conformity and Interoperability Portal

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Overview

Conformity with international standards such as ITU Recommendations is one of the core principles underlying the global interoperability of ICT networks, devices and services.

The ITU Conformity and Interoperability (C&I) programme was initiated at the request of ITU's membership to enhance the conformity and interoperability of ICT products implementing ITU Recommendations or part thereof, solicit feedback to improve the quality of ITU Recommendations, and reduce the digital divide and the Standardization Gap by assisting developing countries with human resource and infrastructure capacity building.

The ITU C&I Programme is organized in accordance with the ITU Plenipotentiary Conference [Resolution 177](#) in four pillars (since Guadalajara, 2010):



PILLAR 1. CONFORMITY ASSESSMENT

Conformity assessment is the process used to demonstrate that a product, service or system conform to specified requirements and commonly used by many standard development organizations (SDOs). By promoting conformity assessment relevant to ITU-T Recommendations and showcasing product conform to ITU-T Recommendations, Pillar 1 of the ITU C&I Programme aims to ensure the strategic goal of the ITU Telecommunication Standardization Sector (ITU-T) to develop interoperable, non-discriminatory and demand-driven international standards for International telecommunication.

[More >](#)

PILLAR 2. INTEROPERABILITY EVENTS

Although conformity assessment increases the probability of interoperability, interoperability can only be guaranteed through practical tests of interconnected equipment and services from different vendors. Self-funding "interoperability events" are run by many SDOs to verify their standards and facilitate their members' to deliver 'standardized' product timely to market. Under Pillar 2, ITU-TSB organizes interoperability testing and showcasing events upon request of ITU-T membership as an integral step of standard-making process.

[More >](#)

PILLAR 3. CAPACITY BUILDING

ITU is implementing human resources capacity building in the regions on conformity, interoperability and testing and will also be organized in cooperation with other relevant regional and international organizations to clarify fundamental aspects as accreditation, certification, mutual recognition agreements and to explore the possibility to establish test centers in developing countries.

[More >](#)

PILLAR 4. ASSISTANCE IN THE ESTABLISHMENT OF TEST CENTRES AND C&I PROGRAMMES IN DEVELOPING COUNTRIES

This activity is intended to facilitate the establishment of regional or sub regional conformity and interoperability test centers and to encourage Mutual Recognition Agreements/Arrangements as appropriate. Guidelines have been prepared by the BDT in this aim and will provide basic elements to establish a strategy to establish test centers, including technical, human and instrumental resources, international standards and financial issues.

[More >](#)

- [Resolution 177 \(PP-14\)](#)
- [Resolution 76 \(WTSA-16\)](#)
- [Resolution 47 \(WTDC-14\)](#)
- [Resolution 62-1 \(RA-15\)](#)





PILLAR 1

CONFORMITY ASSESSMENT



ITU-T KEY ACHIEVEMENTS (1/3)



- **First entries in the Product Conformity Database**, 19 December 2014, www.itu.int/go/tcdb
- **Whitelist of mobile phones** which meet the requirements of P.1100/P.1110
- **Pilot projects** of conformity assessment against ITU-T Recs <http://itu.int/go/pilot-projects>
 - M.3170-series (SG2)
 - Mobile Number Portability (SG11)
 - EPON (SG15)
 - IPTV (SG16)
- **Living list of ITU-T Recommendations on key technologies** suitable for C&I testing <http://itu.int/go/key-technologies>
- **Reference table of ITU-T Recs and corresponding test specification under C&I testing** <http://itu.int/go/reference-table>



ITU-T KEY ACHIEVEMENTS (2/3)



- Finalized the requirements and relevant test specifications for SIP-IMS ([web](#))
- Finalized the [work plan](#) on benchmarking of IMS platform
- **Approved** a new Recommendation [ITU-T Q.3960](#) “Framework for Internet related performance measurements”
- **Consented** Recommendation [ITU-T Q.3920](#) “Terms and definitions for conformance and interoperability”
- Conducted **Workshop on VoLTE/ViLTE interconnection** (web) and started a new work item [Q.30xx_VoLTE_Interconnection_FW](#) “Framework of interconnection of VoLTE/ViLTE-based networks”
- Approved ITU-T Q.3905 “Conformance test plan for Number Portability requirements defined by ITU-T Q.Suppl.4”
- Approved ITU-T Q.4040 “The framework and overview of Cloud Computing interoperability testing”



ITU-T KEY ACHIEVEMENTS (3/3)



- Approved a Guideline **Testing laboratories recognition procedure**
- Established the **Conformity Assessment Steering Committee (ITU-T CASC)** to elaborate detailed procedures for the implementation of a test laboratory recognition procedure in ITU-T (**web page**, **TD938**)
- **ITU-T CASC** established a list of ITU-T Recommendations - subjects for **future joint certification schemes** (e.g. ITU-T P.1140, ITU-T P.1100, ITU-T P.1110 and K.116) (**report**)
- Approved a Guideline on “**ITU-T CASC procedure to appoint ITU-T technical experts**” (SG11, February 2017)
- Established **two Regional groups of SG11 for RCC and Africa** regions (scope: C&I, counterfeiting, etc.)
- **JCA-CIT** was closed at the ITU-T SG11 meeting (July 2016)



Collaboration with ETSI TC INT



Collaboration agreement between ITU-T SG11 and ETSI TC INT is in force since December 2015 ([TD913-GEN/11](#))

Topics for collaboration:

- SIP-IMS conformity testing ([web](#))
- Internet related performance measurements ([web](#))
- Framework of an interconnection among VoLTE/ViLTE-based networks
- Requirements and test specifications for signalling protocol “DIAMETER” to be used in the IMS-based network for VoLTE/ViLTE interconnection

Joint meetings: 1 (Sept. 2015, Vienna); 2 (March 2016, Sofia Antipolis; June 2016, Geneva)

Outcomes:

- finalized the SIP-IMS Work plan (Rel.10)
- ITU-T SG11 approved Rec. ITU-T [Q.3960](#) “*Framework of Internet related performance measurements*” (July 2016)
- The testing method of e2e bitrate is under development now (draft ITU-T Q.3961)
NOTE: ETSI incorporates the Q.3960 and Q.3961 into one standard
- Started work item on VoLTE/ViLTE interconnection framework ([Q.30xx](#))





SG11 Regional Groups

One of the goals of the Regional Groups is to encourage the involvement of developing countries in standardization activities in their regions, and to submit written contributions to the parent Study Group in which they work in accordance with approved terms of reference reflecting the priorities of their respective regions (rev. Resolution 54 of WTSA-16)

THERE ARE TWO REGIONAL GROUPS UNDER ITU-T SG11

- For Africa Region ([SG11RG-AFR](#))
- For RCC Region ([SG11RG-RCC](#))



ITU Product Conformity Database

www.itu.int/go/tcdb



Product Conformity Database

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SHARE    

DISCLAIMER: This database is not certified to be either accurate or complete, but only reflects the information that has been communicated to the ITU secretariat. The ITU secretariat has not verified the veracity or accuracy of such information, nor the relevance of the products to ITU Recommendations

[E-Health Devices](#) [Mobile Phones](#) [Ethernet services](#)

Product	Company	Model Number	Conformity to ITU-T Recommendation
Austonio Application for Android	Intel	Asus Memo Pad 8	ITU-T H.810 (2013-12)
Digital Thermometer	A & D Medical	UT-201BLE	ITU-T H.810 (2013-12)
Digital Blood Pressure Monitor	A & D Medical	UA-651BLE as Type A	ITU-T H.810 (2013-12)
Energy Smart Blood pressure monitor	IDT	BPU321 (as Type A)	ITU-T H.810 (2013-12)
Accu-Chek Active GB	Roche	GB revision 2	ITU-T H.810 (2013-12)
NTT Docomo - Mobile phone HDP manager platform, Android mobile phone	Fujitsu Limited	F-04G	ITU-T H.810 (2013-12)
Manager Platform for Android	Sharp	SHARP Manager Platform	ITU-T H.810 (2013-12)
Precision Health Scale	A & D Medical	UC-352BLE	ITU-T H.810 (2013-12)
A&D Digital Weighing Scale (with Body Composition Analyzer)	A & D Medical	UC-411PBT-C as Type D, AD-6209PBT-C, UC-355PBT-Ci, UC-351PBT-Ci and UC-325PBT-Ci as Type U.	ITU-T H.810 (2013-12)
Bosch Blood Pressure Monitor	Robert Bosch Healthcare GmbH	BP5000 BT	ITU-T H.810 (2013-12)
SHARP HDP Manager Platform for Android (XN-DLBT40)	Sharp	XN-DLBT40 (SH-01F) as Type D, SHL23, 302SH, SH-01F DRAGON QUEST, DM016SH and SH-02F, 303SH, SHT22 and SHL24 as Type U.	ITU-T H.810 (2013-12)





ITU-T Conformity Assessment Steering Committee (ITU-T CASC)

[ITU's testing laboratories recognition procedure](#)

[ITU-T CASC web page](#)

Next meeting: **12 July 2017** (e-meeting)



BACKGROUND



- The Conformity Assessment Steering Committee (**ITU-T CASC**) was **established in April 2015** by ITU-T SG11 to elaborate detailed procedures for the implementation of a test laboratory recognition procedure in ITU-T
- The ITU-T CASC works in accordance with the **ITU-T SG11 Guideline “Testing laboratories recognition procedure”** which describes the procedure for recognition of Testing Laboratories that have competence for testing against ITU-T Recommendations
- **Mr Isaac BOATENG** (SG11 Vice-chairman, Ghana) is appointed as **Chairman of ITU-T CASC**
- **There were three meetings of the ITU-T CASC** (Dec.15, June.16 and Feb.17)
- According to the request received from ITU members, ITU-T CASC established a list of ITU-T Recommendations (e.g. **ITU-T P.1140, ITU-T P.1100, ITU-T P.1110 and K.116**) which may become subjects of the **future joint certification schemes**
- In February 2017, SG11 approved a Guideline on **“ITU-T CASC procedure to appoint ITU-T technical experts”**

More information is available on the [web page](#)



CASC Guidelines



<https://www.itu.int/en/ITU-T/studygroups/2017-2020/11/Pages/CASC.aspx>

International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Guideline

(29 April 2015)

Testing Laboratories recognition procedure

ITU-T



International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Guideline

(15 February 2017)

**ITU-T CASC procedure to appoint ITU-T
technical experts**

ITU-T





PILLAR 2

INTEROPERABILITY EVENTS



ITU INTEROP EVENTS



CONDUCTED TEST EVENTS

- **ITU test event on IPTV**
(Geneva, 17 January 2017)
- **Third ITU test event on compatibility of mobile phones and vehicle's hands-free terminals***
(Bangkok, Thailand, 15-16 November 2016, during ITU Telecom World)
- **IPTV test event**
(Geneva, 14 September 2016)
- **IPTV test event**
(Geneva, 2 June 2016)
- **Second ITU test event: performance of mobile phones as gateways to car hands-free systems**
(Geneva, ITU Headquarters, 23-27 May 2016)

* 10 March 2017, ITU-T conducted a Roundtable between phone and car industries to discuss to discuss possible approaches to address found issues at the relevant test events

Full list of test events is available [here](#)

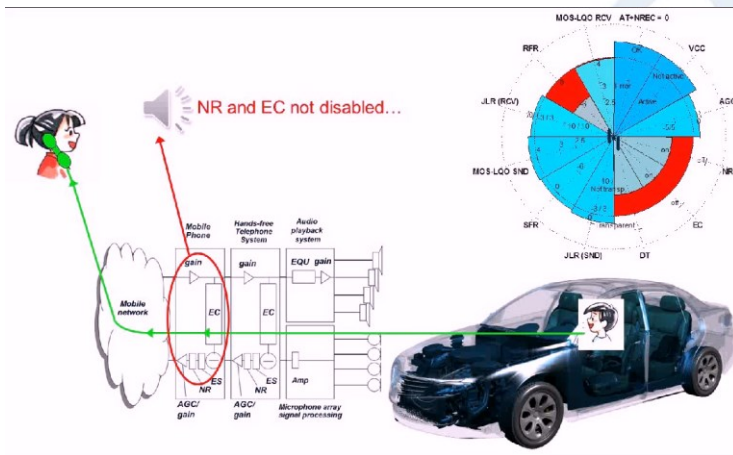




COMPATIBILITY OF MOBILE PHONES AND VEHICLE HANDS-FREE TERMINALS

BACKGROUND

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



LIST OF ITU TEST EVENTS

[May 2014](#); [May 2016](#); [November 2016](#)
[Roundtable](#) (10 March 2017)

Video about test events, see [YouTube](#)

WHITELIST OF BEST PERFORMERS

www.itu.int/go/phone_whitelist

GENERAL STATISTIC

- 58 mobile phones (state-of-art devices)
- 89 tests (55 Narrowband and 34 Wideband)
- **30 % mobile phones comply** with the requirements ITU-T P.1100&P.1110 (1st event)
- **22% mobile phones comply** with the requirements ITU-T P.1100&P.1110 (2nd event)





WTSA-16 DECISIONS RELATED TO C&I



Rev. Resolution 76 (WTSA-16) (1/3)



“Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme”

resolves

...

that ITU-T, in collaboration with the other Sectors as appropriate, shall develop a programme to:

iii) **develop and improve the mutual recognition of C&I testing results, mechanisms and data analysis techniques between different regional testing centres;**

that a set of methodologies and procedures should be developed for **remote testing using virtual laboratories**

that ITU, being a world standardization body, can address the impediments to harmonization and growth of worldwide telecommunications, promote the visibility of ITU standards (ensure interoperability): **by means of having an ITU testing mark regime**, taking into account the technical and legal implications, if any, and/or any revenue-generating possibilities, taking into consideration recognizing j),



Rev. Resolution 76 (WTSA-16) (2/3)



“Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme”

instructs the Director of the Telecommunication Standardization Bureau

...

- 3 considering resolves 7, to accelerate the implementation of Pillar 1, so as to ensure gradual and smooth accomplishment of the other three pillars and the **possible implementation of the ITU Mark**
- 4 in cooperation with the Director of BDT, to implement an ITU C&I programme for possible introduction of a **database identifying products' conformance and origin**
- 5 to publish an **annual plan of C&I activities** which could attract more members' participation
- 6 to facilitate the **development and implementation of an ITU-T C&I test laboratory recognition procedure**



Rev. Resolution 76 (WTSA-16) (3/3)



“Studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme”

instructs the Study Groups

...

to submit to CASC a list of ITU T Recommendations which could be candidates for the **joint IEC/ITU certification scheme**, taking into account market needs

instructs the ITU-T Conformity Assessment Steering Committee

...

to study and **define a procedure to recognize testing laboratories that are competent to test according to ITU-T Recommendations**, in collaboration with existing certification schemes such as that of IEC



WTSA-16 decisions related to C&I (1/4)



Resolution 2 of WTSA-16

“ITU Telecommunication Standardization Sector study group responsibility and mandates”

LEADERSHIP OF SG11

“Study Group 11 is a lead study group on establishing test specifications, conformance and interoperability testing **for all types of networks, technologies and services** that are the subject of study and standardization by all ITU-T study groups”

MANDATE OF SG11

- ...
- “In addition, Study Group 11 will study a way to implement a **testing laboratory recognition procedure in ITU-T** through the work of the ITU-T Conformity Assessment Steering Committee (CASC)”
- ...



WTSA-16 decisions related to C&I (2/4)

Resolution 93 of WTSA-16

“Interconnection of 4G, IMT-2020 networks and beyond”

Instructs the study groups

- 1 to identify as soon as possible future ITU T Recommendations that need to be developed associated with the **interconnection of 4G, 5G/IMT-2020 networks and beyond**;
- 2 to cooperate, as appropriate, with interested stakeholders and alliances in order to optimize studies on this particular subject,

Resolves

that ITU-T Recommendations to address network architectures, roaming principles, numbering issues, charging and security mechanisms as well as **interoperability and conformance testing for interconnection of 4G, IMT-2020 networks and beyond** shall be progressed as quickly as possible



WTSA-16 decisions related to C&I (3/4)



ToR of Q9/11 “Service and networks benchmark testing, remote testing including Internet related performance measurements”

(Continuation of Question 10/11 and 15/11) ([Doc88](#) of WTSA-16)

QUESTIONS

...

What test suites for standardized network parameters, **including those defined in the framework of Internet related performance measurements**, need to be developed?

NOTE – ITU-T Q.3960 (Framework of Internet-related performance measurement) was approved on 6 July 2016

TASKS

- specify **how to test the standardized network parameters, such as e2e bit rate, within the fixed and mobile operator’s networks**
- specify **how to test the standardized network parameters, such as e2e bit rate beyond the fixed and mobile operator’s network** (that is between users of the operator’s network and a particular Internet resource)

NOTE – The network performance QoS/QoE, including the networks and services KPIs, parameters and requirements, are defined by ITU T SG12 and related SDOs

More information is available at the [web page](#)



WTSA-16 decisions related to C&I (4/4)



Resolution 96 of WTSA-16

“ITU Telecommunication Standardization Sector studies for combating counterfeit telecommunication/information communication technology devices”

instructs the Director of the Telecommunication Standardization Bureau, in close collaboration with the Director of the Telecommunication Development Bureau

- 5 to assist Member States in taking the necessary actions to apply **relevant ITU-T Recommendations for combating counterfeit and tampered telecommunication/ICT devices, including the use of conformity assessment systems**

instructs ITU-T Study Group 11, in collaboration with other study groups concerned

...

- 4 to develop **methods of assessing and verifying identifiers** used for purposes of combating counterfeit production
- 7 **to identify a list of technologies/products, used for testing conformance with ITU-T Recommendations, in order to help in efforts to combat counterfeit ICT production**



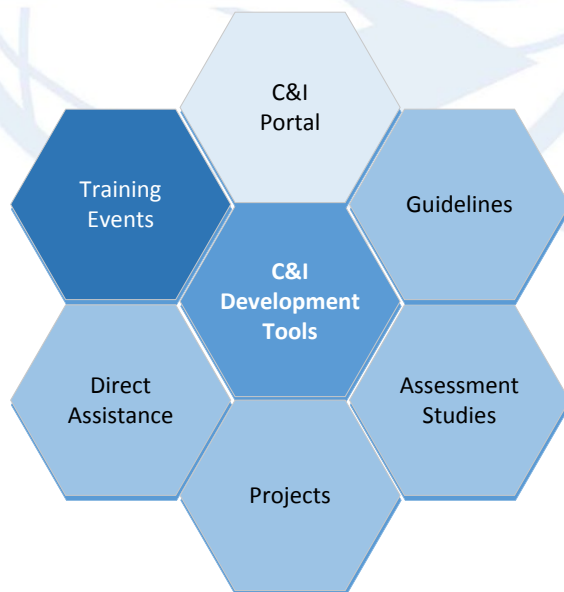
PILLAR 3

CAPACITY BUILDING



PILLAR 4

Assistance in the establishment of test centers and C&I programmes in developing countries



ITU Training activities on C&I



Regional forums and training courses on C&I are being conducted in collaboration with TSB and BR, focusing on conformity assessment procedures, type approval testing for mobile terminals, and different C&I testing domains for the Regions. All training materials and case studies reported by participants on the current national C&I status is available on the C&I portal



2016

- AFR, Tunis 30 May-3 June 2016;
- AMS, 27 June – 1 July;
- ARB, Tunis 11-14 April 2016;
- ASP, April and October 2016;
- CIS, Moscow 22-24 March 2016, Moscow.

2017 (Planned)

- ASP, 6-10 Nov 2017;
- AFR/ARB, 22-26 May 2017;
- AMS, July 2017.



ITU C&I Guidelines



Establishing Conformity and Interoperability Regimes – Basic Guidelines (2014) and Complete Guidelines (2015)

These Guidelines address challenges faced by developing countries as they plan and review their own C&I regimes. Aspects covered by this publication include, inter alia, conformity assessment procedures; legislation to promote an orderly equipment marketplace; surveillance; coordination across regulatory agencies; and relevant international standards.

Guidelines for developing countries on Establishing Conformity assessment Test Labs in Different Regions (2012)

This set of guidelines is the first publication on C&I, its valuable content includes information concerning: The process required for building testing labs; A site analysis (e.g. existing testing labs, know-how); Collaboration mechanisms; Best practices; Reference standards and ITU Recommendations

Guidelines for the Development, Implementation and Management of Mutual Recognition Arrangements/Agreements on Conformity Assessment (2013)

These guidelines promote the understanding and establishment of Mutual Recognition Agreements (MRAs) on conformity assessment that are intended to promote efficiency and resource sharing as well as to streamline the flow of products among participating Parties such as ITU Member States and private sector organizations, such as testing laboratories

Feasibility Study for the establishment of a Conformance Testing Centre (2013)

This feasibility study describes environments, procedures and methodologies to be adopted to establish, manage and maintain a testing center covering different kinds of conformance and interoperability testing areas





Direct Assistance on C&I

A number of countries have expressed strong interest and requested direct assistance in establishing C&I infrastructure and procedures

The Direct Assistance provided through the Regional Offices will provide support taken into consideration all C&I aspects, as:

- **Regulatory framework**
- **Institutions roles and typical procedures**
- **Mutual Recognition Agreements**
- **Funding**
- **National and Regional test centres and harmonized C&I programmes: Roadmap and Feasibility Study**



C&I Regional Assessment Studies



The C&I Assessment Studies looks for promoting the establishment of Harmonized C&I Programmes, collaborate to improve regional integration and fostering the availability of highly qualified institutions (as Laboratories, Certification and Accreditation Bodies)

Activities conducted in close collaboration with Regional Organizations for addressing capacity building activities, accreditation and type approval testing for moving forward to establishing national, regional test centers and/or MRAs

Maghreb (2015/2016)



COMTELCA (2015/2016)



EAC Countries (2015)



The Caribbean - CTU (2014-2016)



SADC Region (2014/2015)



2016

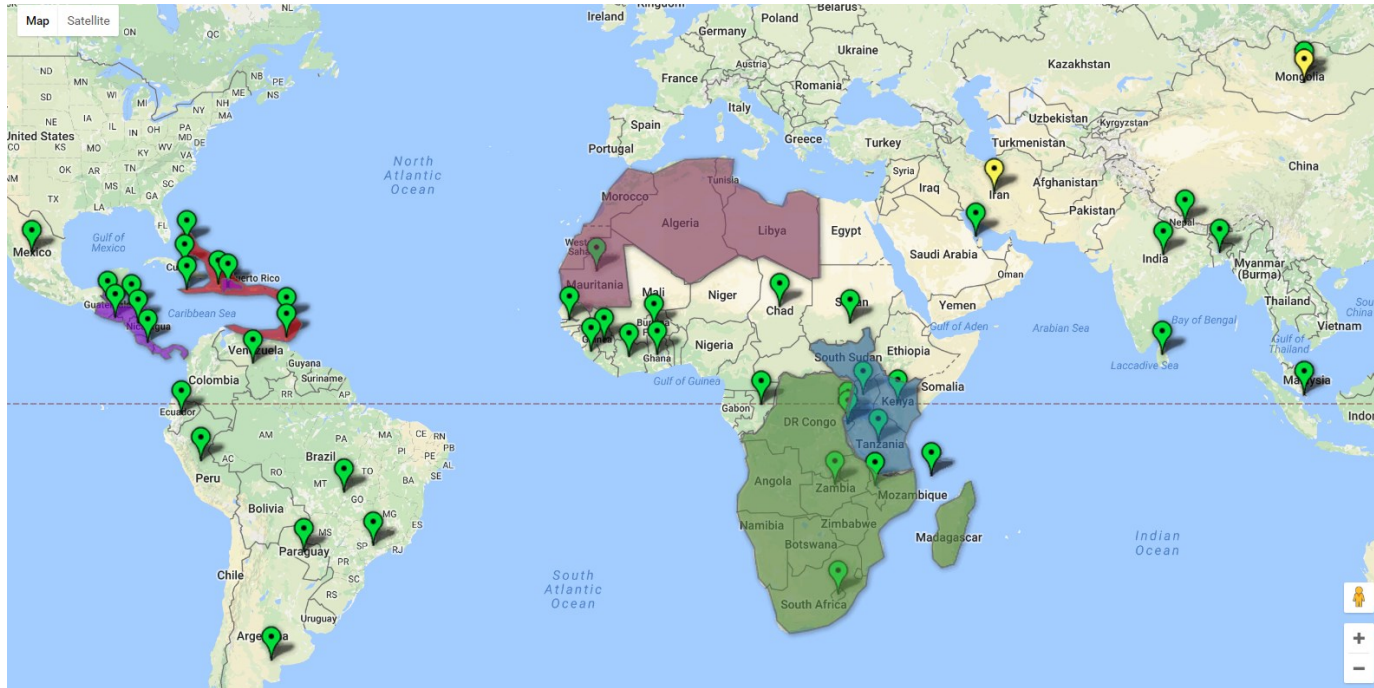
- 2nd C&I Workshop for Central America. **5-6 December 2016, Managua/Nicaragua**
- 2nd ITU/UMA Arab Maghreb Countries Experts meeting for the establishment of MRA on C&I in the Maghreb sub-region, **Rabat, Morocco 14-15 December 2016.**

2017

- Study for South America



2016 C&I Activities Summary



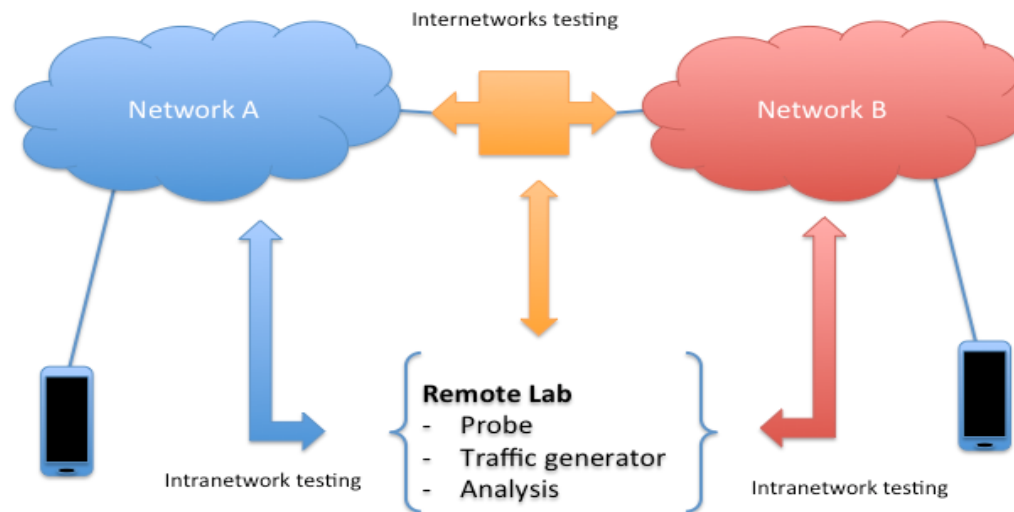
- In 2016, capacity building events were offered so far to 102 participants from 56 countries in real testing facilities through the collaboration of laboratory partners in the C&I Programme
- 5 Regions have received ITU C&I Assessment Studies
- Assistance provided to countries on demand
- More than 50 Case Studies/Country Reports are available through the ITU webpage (http://itu.int/go/CI_Development) and the ITU-D SG [Case Study Library](#).

Pilot Project - 2017



- Virtual Testing Laboratories

- During the 1st C&I Workshop for COMTELCA member Countries (Dec 2015) and the AMS C&I training (Jun 2016) discussions were carried out with CPqD (an ITU Academia Member) and COMTELCA for the signing of an innovative agreement for the implementation of a Pilot Project on Virtual Testing Laboratories as to allow increasing conformity and interoperability of ICT equipment and capacity building opportunities, through the access to specialized testing facilities and high qualified professionals by the usage of modern ICT technologies.
- A Pilot Project and a training event will be executed in 2017





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