**Federal State Unitary Enterprise
Central Science Research Telecommunication
Institute (ZNIIS)**

**International Telecommunication Union (ITU)
Telecommunication Development Bureau (BDT)**

**REPORT
Implementation of CIS Regional Initiative Approved by WTDC-10
(Hyderabad, India)
Establishment of an ITU Virtual Laboratory for the Remote Testing of
Equipment and of New Technologies and Services, in the Interests of
Achieving the Aims of Resolution 76 and Populating a Unified ITU Database**

Following the regional initiative, a project on creation of virtual laboratory was elaborated and implemented in cooperation with the Federal State Unitary Enterprise Central Science Research Telecommunication Institute (ZNIIS) within the framework of ITU-T Programme on Conformance and Interoperability (C&I) and aimed at implementation of the objectives of Resolution 177 PP-10, Resolution 76 WTSA-08, as well as the C&I Action Plan (Council-12 C-48/12).

Key objectives of the project included creation of the virtual laboratory, elaboration of benchmark packages in accordance with the ITU Recommendations, performing of remote C&I tests of new equipment, technologies, and services, end-to-end testing of the Internet access speed, evaluation of the network capacity, quality of services (QoS) and quality of experience (QoE), as well as remote training of specialists from developing countries on testing of information and communication technologies (ICT) and improvement of methods of ICT testing.

The virtual laboratory allows conducting remote tests of equipment, technologies, and services on the ZNIIS model network enabling simulation of different network parameters and use of telecommunication and measurement equipment of different manufacturers. The results of the tests will be accessible, subject to coordination with the suppliers, within the framework of the project. The results of the tests are designed for the ITU C&I database spread-out.

The RCC countries will have access to the virtual laboratory resources upon completion of the project implementation.

Key Results of the Regional Initiative Implementation

1.   Creation by the ZNIIS and on the basis of the ZNIIS of the virtual laboratory for remote testing of equipment, new technologies and services and relevant infrastructure

The virtual laboratory possesses model communication network, simulating NGN and Q.3900 created in accordance with ITU-T recommendations. The virtual laboratory has following structure:

− *Virtual test platform (VTP);*
− *Measurement equipment operating system;*
− *Database (БД);*
− *Virtual laboratory portal.*

The laboratory can perform remote tests of following types:

- *Functional tests of equipment;*
- *Tests of all-channel signaling system # 7;*
- *Tests of protocols of VoIP signaling;*
- *Tests of QoE and communication network capacity indicators;*
- *Tests of security systems.*

The ZNIIS will perform further support of the virtual laboratory and provide remote test services. Access to the system of remote tests of equipment and communication services can be provided to all stakeholders.

Standardization of remote test service and remote test mechanisms/protocols is acknowledged to be a significant element of Testing as a Service (TAAS). The ZNIIS has been invited to participate in the work of SG 11, Q. 15/11.

2. **Creation of the possibility for remote access to measurement equipment**
Correct work through remote access to the systems of the virtual laboratory requires the speed of data transmission (the channel capacity) at the least 64 Kbit/sec. for one remote user. Recommended capacity for one remote user is 1 Mbit/sec. This speed provides remote access independent of the technology of implementation.

3. **Elaboration of the web portal of the laboratory**

During the creation of the laboratory, a web portal was created, which contains information on laboratory, its capacities, equipment, as well as enables registration for testing and remote access to the equipment.

4. **Elaboration of the database of the virtual laboratory**

Within the framework of the regional initiative implementation, the virtual laboratory database was created, which will be replenished with results of the tests of equipment and technologies and information received from the specialists, who complete trainings and attend workshops.

5. **Elaboration of Methodological Recommendations on Use of Infrastructure and Measurement Tools of the Virtual Laboratory**

For better understanding of the virtual laboratory intended purpose, the ZNIIS elaborated Methodical Recommendations on the subject Use of the Virtual Laboratory Infrastructure and Measurement Tools for Remote Tests of Equipment, New Technologies, and Services".

6. **The ZNIIS willingness to elaborate test specifications for the mobile number portability (MNP) system (Q.suppl.4) and initiation of a new ITU-T pilot project on MNP system testing.**

As final stage of the regional initiative implementation, the ITU in cooperation with the ZNIIS and with support of Treatface LLC and Digital Technologies Research and Production Enterprise organized a **regional workshop for CIS on ITU Virtual Laboratory for Remote Tests of Equipment, New Technologies and Services", which was held in Moscow, Russian Federation from 10 to 12 November 2014.**

The workshop was attended by **47** representatives of communication administrations, telecommunication regulators and providers, higher education institutions, telecommunication equipment manufacturers, software developers, and other stakeholder of 6 ITU Member States (Republic of Kazakhstan, Kyrgyz Republic, Russian Federation, Republic of Tajikistan, Republic of Uzbekistan, and Romania), including **5 CIS countries**. The International Telecommunication Union was represented by Mr. Riccardo Passerini, ITU/BDT Focal Point for C&I Programme, Mr. Denis Andreev, C&I Programme Coordinator, JCA-CIT Secretariat, ITU/TSB, and Mr. Andrei Untila, Programme Officer, ITU Area Office for CIS.

The workshop participants represented following companies and institutions: Ministry of Telecom and Mass Communications of the Russian Federation, Federal Agency of Communications, Intellect Telecom OJSC, Selkraft LLC, SVETETS OJSC, International Telecommunication Academy, Rostelecom OJSC, Digital Technologies Research and Production Enterprise, MGTS OJSC, Treatface LLC, Kazakhtelecom JSC, TajikTelecom OJSC, Ministry of Transport and Communications of Kyrgyz Republic, UNICON.UZ Centre of Scientific and Technical and Marketing Research, Bitdefender SRL and others.

Within the framework of the workshop, 26 presentations were delivered by representatives of the ZNIIS, Rostelecom OJSC, Treatface LLC. The workshop was conducted in Russian with simultaneous interpretation into English.

All material of the workshop are available at: https://staging.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2014/11_Moscow/Virtual-Laboratory%2c-Moscow%2c-10-12-November-2014.aspx