

# **General documentation on functional processes and Workflow system**

*for joint ITU-ZNIIS Project*  
*«International Telecommunication Testing Center (ITTC)»*  
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# **1. INTERNATIONAL TELECOMMUNICATION TESTING CENTER STATUS**

## **1.1 General**

- 1.1.1 This Status defines the tasks and work lines, functional structure and responsibilities of the FSUE ZNIIS-established International Telecommunication Testing Center (hereinafter referred to as the ITTC).
- 1.1.2 The Director who manages the ITTC and brings its activities about shall be the ITTC Head.
- 1.1.3 The Center functional structure shall cover the functional groups, as follows:
- System and network solutions testing functional group;
  - Compatibility testing functional group;
  - Quality of Service check functional group;
  - Model network and knowledge base set-up and development functional group.
- 1.1.4 The ITTC Administration shall consist of Project Coordinator, Secretary and Assistant on Administrative matters.
- 1.1.5 The ITTC shall conduct activities on “Getting Approval Practically and Testing New and Prospective Technological Processes; studying their capabilities and features; defining methods on implementing those processes on international and regional telecommunication networks”.
- 1.1.6 The ITTC shall perform work for the ITU to train developing nations’ Administration specialists to master the approaches, concepts and experience in the field of testing new processes and services.

## **1.2 ITTC goal**

- 1.2.1 Assistance in implementing new and prospective telecommunication technology on developing nations’ telecom operators networks rendering the testing experience and routines, next generation networks (hereinafter referred to as the NGN) facilities and services, as well as existent public switched telecommunication networks and facilities (hereinafter referred to as the PSTN).

- 1.2.2 Assistance to be provided to the developing nations' telecommunication operators in upgrading their networks in order to set up the public switched telecommunication networks based on the NGN technology and new telecom services implementation adapted to the effective telecom networks.
- 1.2.3 ITU-D-assisted promotion of the testing and ITU-T-developed standards usage experience into the developing nations.
- 1.2.4 Assistance to be provided to the developing nations' telecommunication Administrations in developing and implementing branch programs and solving science intensive matters in the field of getting approval, testing and studying new and prospective telecom processes capabilities and features.

### **1.3 ITTC task**

- 1.3.1 Organization and conduct of tests on practicing new telecommunication technology for the ITU as for the joint Project-specified tasks.
- 1.3.2 Developing nations' specialists training to master the basic approaches and procedures concerning new telecom processes and services testing under the ITU-T Recommendations and Draft Recommendations.
- 1.3.3 Developing nations' specialists advising on telecom facilities functionality and implementation features, as well as on telecom protocols and services to be applied to the above facilities.
- 1.3.4 ITTC Reports development and submission within the Center scope framework. Accordingly, the Reports shall be submitted to the ITU, international and national scientific conferences, workshops, meetings, and, further, shall be published as scientific and technical proceedings.

### **1.4 ITTC work topics**

Amidst the ITTC activities, the following basic work topics shall be specified:

- Coordinating and implementing projects on testing new telecom technological processes by using the FSUE ZNIIS capabilities and resources on the basis of the ITU-T Q.3900 Recommendation;

- Organizing development of programs and testing routines to be applied to telecom facilities, system and network solutions and services under the ITU-T Recommendations by using the TTCN-3 language for describing the tests;
- Assisting in implemented projects in organizational and scientific-technical way;
- Organizing scientific and technical conferences and training workshops on relevant new telecom technologies testing, operation and commissioning on the telecom operators networks;
- Developing analytical reports on assessing the conflict events arising from different manufacturers-made facilities interaction, and developing recommendations to have the above events removed.

### 1.5 ITTC functional structure

The ITTC functional structure shall be as shown in Figure 1.

1.5.1 ITTC functional structure shall cover four functional groups, as follows:

- System and network solutions testing group (SNSG);
- Compatibility testing group (CTG);
- Quality of Service check group (QoSCG);
- Model network and knowledge base service (MN&KBG).

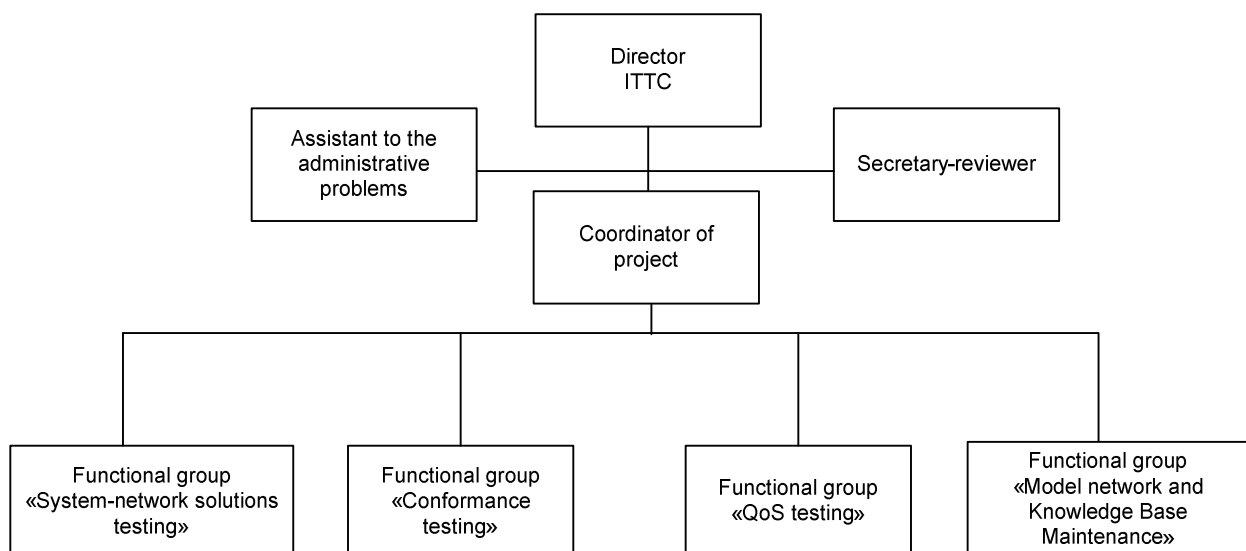


Fig.1. ITTC functional structure

1.5.2 System and network solutions testing group (SNSG)

It shall conduct:

- System and network solution telecom facilities tests preparation and conduct; appraisal of conflict events arising from different manufacturers-made facilities interaction, and developing recommendations to have the above events removed; and advising services rendering for telecom operators and telecom facilities manufacturers, as well.
- System and network solution telecom facilities tests programs and routines development. That shall be a document, which defines facilities test program, tests list and tests conduct routines under the ITU-T Recommendations by using the TTCN-3 language for describing the tests.
- Test plans development by specifying all facilities under testing, and planning tests on the model network implemented under the ITU-T Q.3900 Recommendation, as well.
- Tests in conformance with the facilities test plans, programs and routines.
- Tests log preparation and recording (conducted tests reports).
- Findings appraisal; gathering and generalizing notes or discrepancies detected in the course of tests.
- Tests results minutes execution.

### 1.5.3 Compatibility testing functional group (CTG)

It shall conduct:

- Preparation and conduct international and branch standards compatibility tests of protocols, facilities and services; appraisal of conflict events arising from different manufacturers-made facilities interaction, and developing recommendations to have those events removed; and advising services rendering for telecom operators and telecom facilities manufacturers, as well.
- Telecom systems and facilities international and branch standards compatibility tests programs and routines development. That shall be a document, which defines facilities test program, tests list and tests conduct routines under the ITU-T Recommendations by using the TTCN-3 language for describing the tests.

- Test plans development by specifying all facilities under testing, and planning tests on the model network implemented under the ITU-T Q.3900 Recommendation.
- Tests in conformance with the facilities test plans, programs and routines.
- Tests log preparation and recording (conducted tests reports).
- Findings appraisal; gathering and generalizing notes or discrepancies detected in the course of tests.
- Tests results minutes execution.

### 1.5.4 Quality of Service check functional group (QoSCG)

It shall conduct:

- Telecom systems and facilities Quality of Service check preparation and conduct; appraisal of conflict events arising from different manufacturers-made facilities interaction, and developing recommendations to have those events removed; and advising services rendering for telecom operators and telecom facilities manufacturers, as well.
- Telecom systems and facilities Quality of Service check tests programs and routines development. That shall be a document, which defines facilities test program, tests list and tests conduct routines under the ITU-T Recommendations by using the TTCN-3 language for describing the tests.
- Test plans development by specifying all facilities under testing, and planning tests on the model network implemented under the ITU-T Q.3900 Recommendation.
- Tests in conformance with the facilities test plans, programs and routines.
- Tests log preparation and recording (conducted tests reports).
- Findings appraisal; gathering and generalizing notes or discrepancies detected in the course of tests.
- Tests results minutes execution.

### 1.5.5 Model network and knowledge base service functional group (MN&KBG).

It shall conduct (and provide):

- ITTC infrastructure functioning, upgrading and development to have the projects on implementing the modern telecom technology processes on the telecom operators networks turned real.
- ITTC workers organization and activities coordination in the field of the installed facilities operation techniques.
- ITTC process subsystems status check (power supply, water supply, heating, sewerage system, air conditioning and ventilation, fire security).
- Management of works on developing facilities closed circuits, on setting communication links up to telecom network operators and Internet providers, and their status monitoring.
- Activities aimed at creating and providing good functioning of the ITTC workers and employees' workstations and clients on the basis of the Safety Rules and Labor Protection Standards.
- Activities on providing installed facilities protection against foreign access attempts. It shall monitor the established procedures of allowing FSUE ZNIIS workers, employees, clients and visitors to access the ITTC premises.

The ITTC shall be staffed in numerical, educational, qualification and experience way suitable to have the above mentioned concepts implemented.

### **1.6 Works organization and funding**

- 1.6.1 The works funding and funds allocation shall be carried out based on the effective ITU provisions concerning the experts' board services payment.
- 1.6.2 A sponsorship involved having any stages or work elements of the specific project implemented might be considered a kind of funding.
- 1.6.3 Within the ITTC activities, some direct Contracts on concomitant works may be made. The Contracts of the kind may be free of the Center activities related to the specific joint ITU/FSUE ZNIIS project under implementation.

### **1.7 Responsibilities**

- 1.7.1 The ITTC shall be held responsible for:
  - Fulfilling the assigned tasks;

- Meeting the “Memorandum of Understanding” (MoU) provisions;
- Accomplishing works as set forth in the “International Telecommunication Testing Center (ITTC) Set-up Work Plan”.

## 2. WORKFLOW SYSTEM

### 2.1 General

When organizing functional group activities on testing system and network solutions, three workflow-controlled operating processes shall be implemented, namely:

- Testing system and network solutions
- Training for system and network solutions testing approaches and concepts
- Internal managerial activities

### 2.2 Documents Circulation Procedure for Testing Process

Documents circulation procedure required for testing process realization is given in Fig. 2.

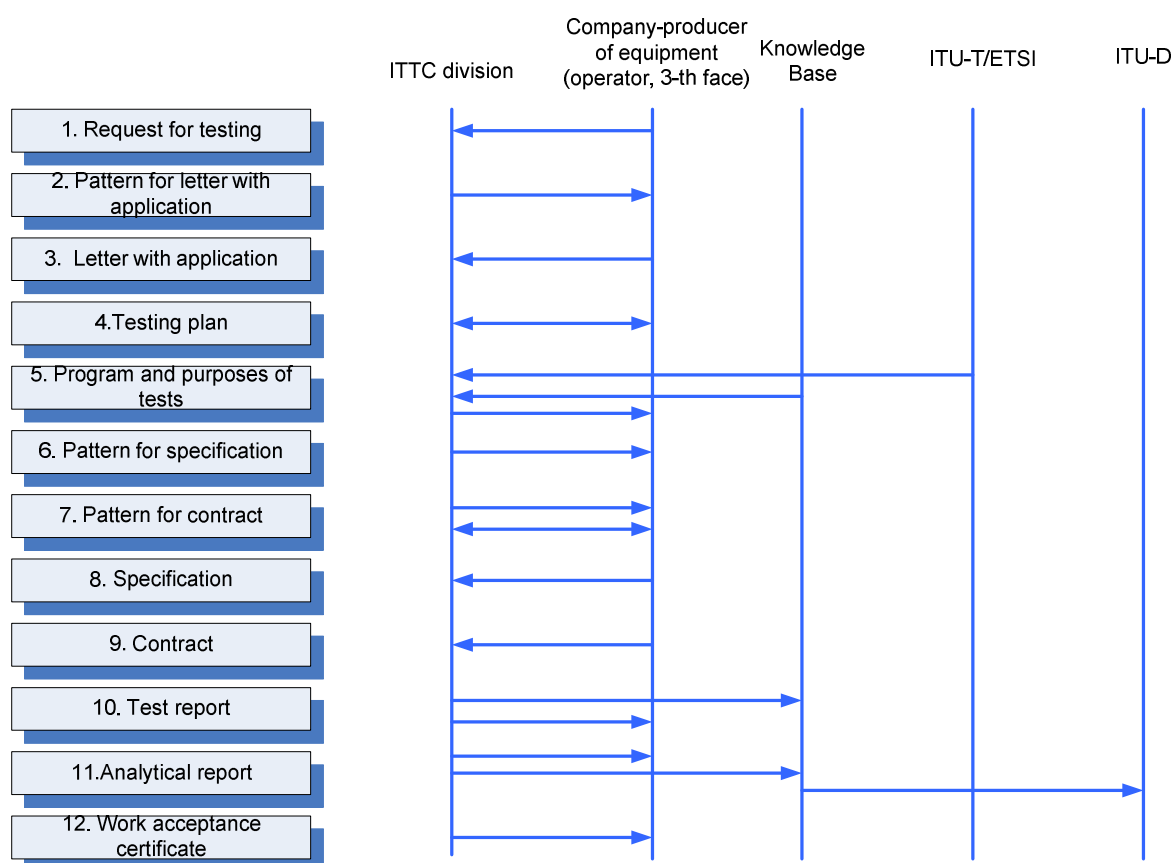


Fig.2 Documents Circulation Chart for Testing Procedure Realization

Testing of system and network solutions is organized as follows:

- Equipment manufacturer should submit the ITTC a standard-type application as specified in A.1.1.form. The application covering letter should include the following data: company name, testing object (list of equipment including description of system and network solutions), expected time of testing performance;
- The application filled in as specified in the relevant pattern is forwarded to the ITTC Director by the company for which testing is performed;
- After the filled-in application is registered in the ITCC the equipment manufacturer is given the required packet of documents including plan-graph, program and procedure of testing and contract and specification patterns of equipment;
- The set of required documents as agreed upon between the parties is signed by authorized representatives of relevant companies;
- Delivery and adjustment of tested equipment is effected in accordance with established procedure;
- By results of performed tests the following report documents are drawn up: general test report, particular test report and analytical report as per testing results;
- The executed report documents are handed over to the equipment manufacturer and to ITU-D. The performed work report is signed after the documents are published on the ITTC official site.

### **2.2.1 List of Main Documents Required for Testing Procedure Realization**

**Time schedule** (Form A.2.1) – document containing tables for each day of testing including test program, responsible persons and procedure performance time.

**Contract** (Form A.3.1) – a legal document that officially confirms overall agreement to tests performance. The Contract is made by ITTC responsible persons in accordance with the letter data and already established procedure.

**Specification** (Form A.4.1) – a document, containing test object features. The Specification is made by responsible persons of the company for which testing is performed. The Specification is intended for preparing the ITTC Model network for tests in accordance with a type of organized tests and test object features. This document should be submitted to the ITTC together with the Contract.

**Program and procedure** (Form A.5.1) – a document elaborated at the stage of testing planning and intended for making test object program and defining testing procedures. This document includes the following main items:

- introduction;
- test scenario;
- test program;
- test procedure.

Section “Test Procedure” is most important for the testing realization proper. This section contains a set of tests which describe the testing procedure including test objects, normative references, specifications of checked parameters or procedure, model network configuration, initial status of communication means, test procedure and expected result. Database section “Testing” is intended for storage and subsequent presentation of data on programs and procedures of performed tests. The programs and procedures document made by the designer is registered in accordance with the classifier and published in the database.

**Test report** (Form A.6.1) – a document intended for generalization of equipment test results. The document includes the following main items:

- introduction;
- test objectives;
- test objects;
- configuration data;

- test results;
- test results conclusion.

**Analytical report** (Form A.7.1) –a resulting document containing testing results analysis and conclusion.

## 2.3 Documents Circulation Procedures for Training Process Realization

Documents circulation procedure used for training process realization is given in Figure 3.

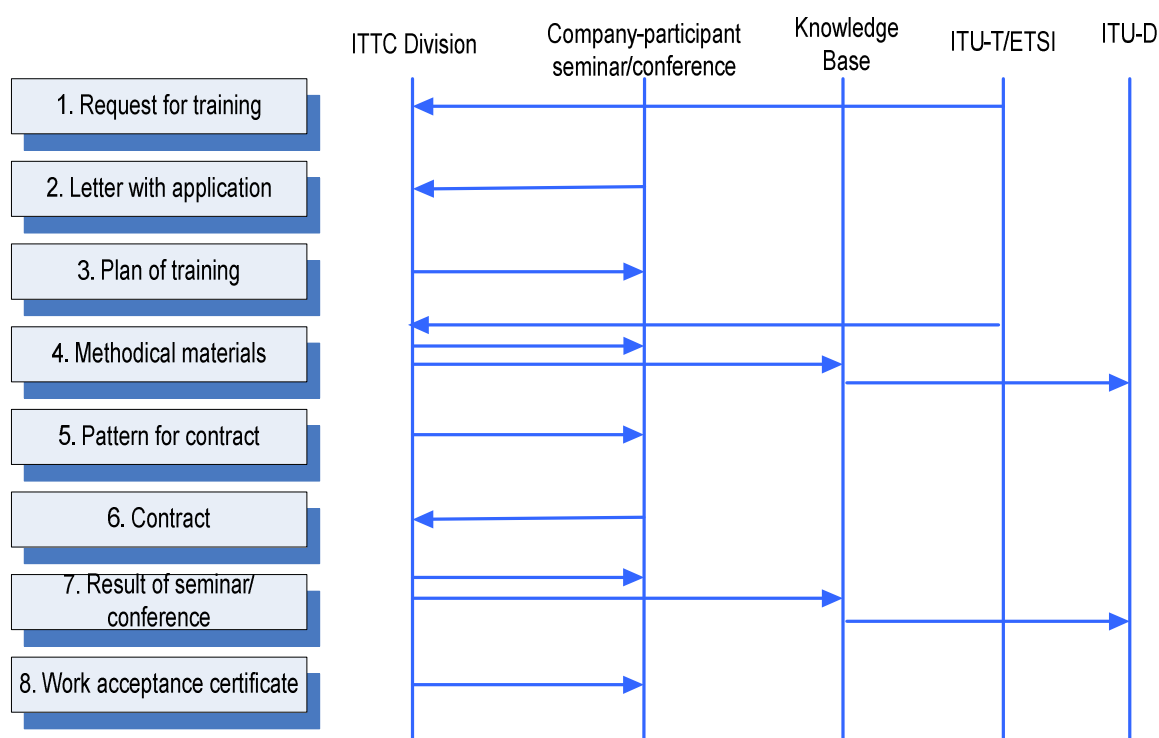


Fig.3 Documents Circulation Chart for Training Procedure Realization

To organize training on approaches and principles of system and network solutions testing the company-participant of the training course should submit the ITTC the following documents:

- Standard-type application as specified in Form B.1.1. The application covering letter should include the following data: company name, training course subjects, expected terms of training course;

- The application filled in as given in the pattern is forwarded by the company-participant to the ITTC Director;
- After the application is registered in the ITTC the following documents packet is elaborated and given to the company-participant: plan of workshops, methodical materials and contract pattern.

Training is performed using methodical materials. Special materials are made on the basis of documents contained in the ITTC database. Database Section “Training” is intended for storage of methodical materials and using them for training in accordance with the following procedure:

- The methodical materials document is registered in accordance with the classifier and published in the database;
- The methodical materials, presentations of reports and covering documentation are forwarded to a seminar/WorkShop company-participant;
- The performed work report is signed after the training course/WorkShop is completed in compliance with the seminar/WorkShop terms specified in the plan..

### **2.3.1 List of Main Documents Required for Training Process Realization**

**Workshops/conferences plan** (Form B.2.1.) – a document with the list of seminars/WorkShops.

The following documents are used as methodical materials for training seminars: presentations, course of lectures (methodical aid), course of practical studies (methodical directions for fulfillment of practical work), course program. The following documents are used as methodical materials for WorkShops: presentations, report thesis, brief data on WorkShop participants, agenda.

**Presentation** (Form B.3.1.) – a document electronic version containing data on a certain seminar/WorkShop.

**Guide** (Form B.4.1.) – a printed or electronic document used as a theoretical basis for training on approaches and principles of system and network solutions testing.

**Practical work routine instructions** (Form B.5.1.) – a printed or electronic document used as a manual on acquiring practical skills of system and network solutions testing.

**Course program** (Form B.6.1.) – a document containing a list of seminars with names of seminar organizers and exact time of seminar holding. .

**Report abstracts** (Form B.7.1.) – an information document containing brief principal points of report.

**Brief data on WorkShop participants** (Form B.8.1.) – an information document generalizing WorkShop participants data submitted at registration stage. .

**Agenda** (Form B.9.1.) – an information document with the list of subjects for discussion, names of responsible persons and approximate time of discussion.

## **2.4 Documents Circulation Procedures Required for Organization Activities Realization**

To fulfill current tasks and major operating activities the ITTC resorts to auxiliary measures which include records of intermediate documents on accounting and statistics of testing and primary analysis of testing results.

### **2.4.1 List of Main Documents Required for Organization Activities Realization**

**Test log** (Form C.1.1.) – a report document made daily by ITTC responsible persons as per performed test results. This document data includes primary statistics on performed testing scope, such as company name, test procedures as per tests schedule, name of person in charge of performed testing procedure, performed testing procedure result and notes.

**Comments log** (Form C.2.1.) – a document made by results of test log analysis. Comments log contains company name, designation of test during which comments were made, description of revealed problem situation and problem elimination methods.