

Source: TSG T

Title: 3GPP TTCN specifications

Agenda item: 8.3.4

Document for:

Decision	X
Discussion	
Information	

**Specification Group Services and System Aspects
Meeting #4, Miami, USA, 21-23 June 1999**

TSGS#4(99)278

From: TSG-T

To: TSG-SA

Subject: Funding for development of 3GPP TTCN specifications

Rationale

The detailed protocol and signalling test specification for 3GPP MS will be specified in a formal language, TTCN (Tree and Tabular Combined Notation¹). This is similar to the changes in the descriptions in the 3GPP core specifications. The prose aspects of the test specification will become more compact and contain only brief test descriptions. Most 3GPP test equipment manufacturers and the majority of the mobile manufacturers support this method of writing the 3GPP test specifications and would prefer to have a TTCN test specification rather than a detailed test specification in prose.

Writing a rigorous TTCN test specification is not an easy thing and needs skilled experts. Voluntary contributions are so far limited. TSG-T1 are making their best efforts so that nearly 10% of TTCN test cases, those with the highest priority, will be contributed by the 3GPP members on a voluntary basis for the release 99. However, a large number of the remaining test cases are still to be specified. These tests will mainly qualify an MS for world-wide interoperability with the 3GPP networks. Without such tests the interoperability cannot be guaranteed.

Proposals

In order to develop the protocol conformance tests in TTCN for the MS interoperability, a funding of **6.5 man-years** from 3GPP is requested. The funding will be spread over two years for the releases 2000, 2001. Each release could spend 3 man-years. The remaining 6 man-months will be used for TTCN maintenance.

The estimated funding is based on the latest draft specifications from RAN2. TSG-T1 assumes currently that most test cases for CC, SS, SMS, MM/GMM, and SM in GSM 11.10, version 6 can be partly reused. It is unclear how far the current GSM 04.08 V.7 will be modified to 3GPP 24.008. An LS from TSG-T1 has been sent to CN1 for clarification.

The funding shall be used to organise a Special Task Force (STF). The working procedures and working methods currently used by ETSI STFs would apply. The STF shall develop and generate the TTCN test specification for the MS in close co-operation with TSG T1. TSG T1 will remain responsible for the defining the tasks based on the shortened prose descriptions and will also be responsible for the validation and release of the specifications.

The test specification will be mainly based on the SDL descriptions in the relevant 3GPP core

¹ Editor note: TTCN is the only internationally standardised notation language used for protocol test specification. The testing model, the syntax and static semantics of the language are contained in ISO/IEC 9646-3, edition 2. ETSI TC MTS (Methodologies for Testing and Specifications) is the driving force for the further TTCN development.

specifications and shall cover the protection of 3GPP networks and network connections. This will also ensure the MS interoperability with 3G networks and with 2G networks, if the dual 2G/3G mode is supported. The STF will be technically steered and managed by TSG-T1

All results including TTCN codes both from the proposed STF and from the member voluntary contributions will be the joint intellectual property of 3GPP.

TSG-T is requested to endorse this proposal and bring it up to the forthcoming PCG meeting for a decision.

Note: The Terms of reference for the proposed STF will be produced when necessary.

Technical Specification Group Terminals *TSGT#6(99)259*

Meeting #6, Nice, France, 13-15 December 1999

Source: TSG T WG1

Title: TTCN Task team Terms of Reference

Agenda item: 6.1

Document for: Approval

Summary

Discussions continue between the 3GPP organisation Partners on the necessary 3GPP funding for creation of an MCC Task developing 3GPP test specifications for UE. Not all of the Partners have signalled their agreement to contribute to this work. The activities cannot proceed until funding has been agreed.

On the assumption that the Task is agreed, the financial liability will be equally split among the Organisational Partners. The total budget required for this task is 1 014 kEuro. The 3G TTCN Task will be spread over 3 years so more than one third of that budget is required in year 2000. ETSI GA34 approved the ETSI MCC budget for 2000 including the ETSI contribution to the Task.

1. A ToR for the intended MCC Task is proposed for TSG-T approval.

2. It is requested to forward the ToR

- **to the TSG-SA meeting for endorsement and**
- **to PCG for the final approval / agreement.**

The intention is that as soon as the 3G Partners agree on the funding matters the Task IK on the 3G TTCN specification can be immediately launched. The information provided in ToR can hopefully help the 3G Partners to reach the funding agreement.

Terms of Reference

For MCC Task IK

Producing 3GPP ATSS / PIXIT/ for UE R99

1. Reasons for proposing the Task

The 3GPP Release 99 for the core specifications will be delivered in January 2000. The 3G protocol and signalling conformance test specifications for UE in R99 are expected to be delivered within 2000.

3GPP T1 had a common workshop with ETSI MTS and PEX to examine the requirements from a large spectrum of viewpoints and to introduce the latest experiences gained from the deployment of the methodologies and new TTCN features by ETSI. The majority of the 3G mobile manufacturers prefer to have a TTCN specification with a high quality. A number of 3G tester vendors gave the commitment to implement the TTCN specification being developed.

Writing a TTCN specification needs skilled specialists. Voluntary contributions are so far very limited. In order to boost and accelerate the 3G ATS development, a specific MCC Task needs to be created.

2. Consequences if not agreed

All test cases being produced by the Task will mainly qualify an UE for world-wide roaming and interoperability with the 3G networks. Without such tests the interoperability of 3G UE cannot be guaranteed. Should the Task not be installed in a timely manner, a delay of the 3G conformance test specifications in Release 99 by at least one year (i.e. end of 2001) would be accounted. Such a delay is unacceptable by the 3G market.

3. Detailed description

3.1 Subject title: 3G TTCN specifications for UE R99

3.2 Reference Technical Body: 3GPP TSG T(1)

3.3 Other interested Technical Bodies: 3GPP TSG RAN(2), TSG CN(1), ETSI SMG(7), MTS

3.4 Target dates for the start of work: March 2000

3.5 Target dates for the conclusion of the work: March 2001

3.6 Resources required

3.6.1 Necessary manpower

The total resources required for the Task are 35 mm, split as follow:

- for drafting of deliverables: 30 MM
- for assisting and updating of test descriptions and ICS documents: 1 MM

- for travelling and attending TSG T1 and TSG T1 SIG meetings: 2 MM
- for management, co-ordination and quality assurance: 2 MM

3.6.2 Estimated costs, additional to the manpower

- Expected travels within Europe: 10
- Expected intercontinental travels: 7

3.6.3 Qualification required, mix of skills

Required are three TTCN specialists. Their experience in production of TTCN is essential for the success of the Task. Two of them should have the knowledge on the 3G access protocols over the radio interface. The other one needs to have the detailed knowledge on GSM Layer 3 protocols. The major tasks are to produce TTCN test cases based on the test structure and test purposes provided and approved by TSG-T1 for R99 and to produce a main ATS document including PIXIT pro-forma. The three specialists should be available preferably full time and will approximately require 30 MM. It is expected that an ETSI PEX member will be the Task leader, and will manage the resources, give general technical support, quality checking and participate at the TSG T1, TSG T1 SIG and the Task team meetings. The approximate amount of efforts for the PEX is 5 MM.

3.7 Scope of Terms of Reference

The technical areas of the Task cover the conformance test specifications for UE both at the radio access for MAC, RLC, RRC layers and for non-access L3 protocols MM and CC. The TTCN being developed should meet the UE requirements supporting voice call, Emergency call, SMS, Fax, CS data up to 64 kb/s services .Among these are:

- Development of MAC, RLC ATS,
- Development of RRC ATS,
- Development of test cases for auto-calling restrictions and multiple radio access system (GSM/3G) cell selection/re-selection and hand-over,
- Modification and migration of the existing GSM Idle mode, MM, CC and SMS test cases,
- Drafting an ATS design document describing the test model, interfaces, styles and specifying PIXIT pro-forma,
- Project co-ordination management and quality assurance,
- Assisting the updating test descriptions and ICS.

3.8 Context of the tasks

3G TSG T1 are developing two TS which should be a starting point for the Task.

- 3G TS 34.123-1: (MS) Protocol conformance specification, R99 (June 2000)
- 3G TS 34.123-2: ICS pro-forma (June 2000)

The first TS specifies the test structure, test purposes and give each test case a short description. The second one specifies necessary ICS questions for UE manufacturers on baseline and service implementation capabilities.

An ATS design document will be produced firstly by the Task team. An intensive discussion (probably by e-mail) with TSG T1-SIG is needed at the Task starting phase. It is also worthwhile that the discussion for the skeleton of the design document can be already started at the beginning of year 2000 within TSG T1 SIG. Once a first draft of the design document is available, the three main tasks for the TTCN development can be started in parallel. The TTCN test cases will be designed manually for R99.

Whenever the draft version 1.0.0 of the intended deliverable is available the validation of the 3G test cases should be started by the TSG T1 members. The validation through implementation of test cases is a key issue for the quality of ATS. The test cases should be produced in a manner that allows all of them to be validated by March 2001.

3.9 Related activity in other bodies and necessary co-ordination of schedules

Changes in GSM 11.10 of SMG7 and the stability of the relevant core specifications in R99 of CN1 and RAN2 will have impact on the progress of the Task.

3.10 Base documents and their availability

- 3G TS 23.022: Functions related to Mobile Station (MS) in idle mode and group receive mode, R99
- 3G TS 24.008: Mobile radio interface layer 3 specification, Core Network Protocols - Stage 3, R99
- 3G TS 25.321: MAC protocol specification, R99
- 3G TS 25.322: RLC protocol specification, R99
- 3G TS 25.331: RRC protocol specification, R99
- GSM 11.10-1: Mobile station conformance specification, R98
- GSM 11.10-2: PICS pro-forma, R96
- GSM 11.10-3: L3 Abstract Test Suites, R96

3.11 Work item from the ETSI Work Programme for which the Task is required

DTS/TSGT-0134123-3U

3.12 Expected output(s)

3G TS 34.123-3: Abstract Test Suites

- Version 1.0.0: September, 2000
- Version 3.0.0 (R99): March 2001

Technical Specification Group Terminals *TSGT#6(99)258*

Meeting #6, Nice, France, 13-15 December 1999

Source: TSG T WG1

Title: TTCN task team project plan

Agenda item: 6.1

Document for: Approval

Summary

The TSG-T1 Signalling subworking group has been asked to provide an abstract test suite in TTCN for testing conformance of 3GPP user equipment. This document proposes an outline work-plan for assembling this test suite during 2000. The proposal assumes that a team of TTCN experts funded by 3GPP will be in place early in 2000 to provide key parts of the test suite. It also assumes that voluntary contributions will be provided to complete the work.

Description of the schedule

Milestone	Meeting	Target date (2000)
◆ Define and agree funded team structure and scope	T1/SIG #7	10 Dec
◆ Get T1/T approvals for team structure, and scope (term of reference)	T #6	13-15 Dec
◆ Get agreement on uniform coding style to be used by funded team and all voluntary contributions	T1/SIG #8	24-25 Jan
◆ Agree text for "call for experts"		
◆ Complete migration of GSM prose from 11.10 (only items scheduled for R99)	T1/SIG #9	21-23 Feb
◆ Evaluation of work involved in transferring test cases from the GSM ATS		
◆ Define and agree test suite architecture		

Milestone	Meeting	Target date (2000)
◆ Provisionally select team	T1 #6	24-25 Feb
◆ Notify selection of team to TSG-T	T#7	15-17 Mar
◆ TTCN framework completed (declarations section, common test steps etc.)	T1/SIG #10	29-31 May
◆ Plan for migration of GSM test cases agreed		
◆ First drafts of L2 and RRC tests approved by T1/SIG		
◆ TTCN 34.123-3 framework with example test cases presented to T1/T for information	T#8	19-21 Jun
◆ TS 34.123-1 approved by TSG-T (key dependency)		
◆ L2 and RRC tests filled, validated and approved by T1/SIG	T1/SIG #11	4-6 Sep
◆ First drafts of migrated GSM test cases approved by T1/SIG		
◆ Revised date for proposal of 34.123-3 to T1/T for information (version 1.0.0)	T#9	25-27 Sep
◆ Migrated speech related GSM test cases and other speech related R99 test cases filled, validated and approved by T1/SIG	T1/SIG #12	20-22 Nov
◆ Migrated GSM test cases and other remaining R99 test cases filled, validated and approved by T1/SIG	T1/SIG #13	Feb '01
◆ TTCN 34.123-3 presented to T1 for approval	T1 #10	Feb '01
◆ TTCN 34.123-3 presented to T for approval (version 3.0.0)	T #11	Mar '01

Role of the funded team

This schedule assumes that the funded TTCN team will adopt the following roles:

- Generation of the TTCN framework, including common sections that could be used by T1/SIG members to provide voluntary contributions
- Generation of a core set of test cases, possibly including, or focussing on migration of GSM ATS
- Adaptation of voluntary contributions to ensure that they integrate with the other test cases into a single test suite

It is assumed that the team will not be capable of validating test cases, and this will be left to T1/SIG members to perform.

This schedule assumes the resource planned in Tdoc T1S-99079. If more resource is available, items planned for implementation after the end of 2000 may be completed earlier