3GPP TTCN Status Report (May 05)

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TSG-RAN#28 RP-050261

Overview

- **About UE conformance test**
- **About MCC task 160**
- **Clients of TTCN tests**
- **Other relevant TSG for test**
- **Results and status**
- **Requests to RAN**

UE Conformance Test

- **Conformance test is**
  - Very detailed test specifications
  - Based on the 3GPP core specs
  - Low level test
  - Implemented in system simulators
  - Before commercial products entering market
  - Voluntary declaration, but certified
  - One of the most important UE quality benchmarks for interoperability
- **3GPP UE conformance test containing five test aspects …**
- **USIM functional test (TS 31.121)**
- **UICC test (ETSI TS 102.230)**
- **Acoustic test (TS 26.132)**
- **Radio Frequency & Radio Resource Management test (TS 34.121)**
- **Protocol and signalling test (TS 34.123)**
  - Heart of conformance
  - Most difficult part
  - Unambiguous & less tolerant (leading to verdict Pass or Fail)
  - Time consumed at specification
  - Bottleneck at UE conformance testing
- **RAN5 responsible for the last two test aspects**

MCC task 160

- **MCC task 160 created in 2000**
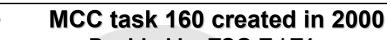 - Decided by TSG-T / T1
  - Use Specialist Task Force (STF)
  - To accelerate test specification in cost effective way
- **To develop UE conformance test cases for protocol and signalling test**
  - Written in TTCN 2+ (Tree and Tabular Combined Notation)
  - Black box test method for commercially available UE
- **Team located at ETSI**
  - Team leader from ETSI Protocol & Testing Competence Centre PTCC
  - Use available ETSI STF support facilities
- **3GPP partners invested > 4 millions € (1 million € / year)**
- **Two teams (FDD + TDD), 14 experts**
  - Most experts from UE and SS vendors
  - Having excellent protocol and TTCN knowledge
- **400 FDD tests in TTCN are running in 5 SS platforms**
- **200 LCR TDD tests developed in TTCN**

Clients of 3GPP TTCN test

- **Global Certification Forum (GCF)**
- **PCS Type Certification Review Board (PTCRB)**
  - **GCF + PTCRB are the major clients for W-CDMA (FDD) test**
- **TD-SCDMA Industry Alliance (TDIA)**
  - **TDIA is the major clients for TD-SCDMA (LCR TDD) test**

Other relevant TSG for UE test

- **GERAN-3 is responsible for GERAN to UTRAN InterRAT test**

- **MCC task 272 develops and maintains these tests**
  - ETSI PTCC takes the leadership
  - MCC task 272 works closely with MCC task 160

- **GERAN / GERAN-3 provide guidelines, agree the results and request the necessary funding at PCG /OP meeting for MCC task 272**

ATSs

- **TTCN test cases grouped into 10 Abstract Test Suites (ATSs)**
  - NAS, SMS, RRC ATS
  - RLC, MAC ATS
  - RAB ATS
  - HSDPA, AGPS ATS
  - IR_U, IR_G ATS
- **ATSs are regularly delivered by MCC task 160 as coded software**
  - A RAN5 delivery / every 2 - 3 weeks as a RAN5 interim working documents
  ftp://ftp.3gpp.org/tsg_ran/WG5_Test_ex-T1/TTCN/Deliveries
  - A 3GPP formal delivery / every three months following each TSG meeting
    - Attached to TS 34.123-3 Annex A
    - Providing TC lists of RAN-agreed test cases
- **A configuration Release manager (RCM) within MCC task 160 controls the contents of each delivery**
- **Each delivery regression-tested by SS vendors to ensure the test cases always working**

Approval of TTCN CRs

- **Any changes of the approved TCs in TTCN codes require TTCN CRs**
- **TTCN CRs approved at RAN5 through e-mail in RAN5-S reflector** 3GPP_TSG_RAN_WG5_SIG@list.etsi.org
  - **TTCN CR consultation period 2 weeks**
  - **Category B CRs for introduction of a new verified TTCN test case**
  - **Category F CRs for TTCN error corrections**
- **Approval of a new TTCN test case requires:**
  - **SS vendors verify the TTCN test cases**
  - **Providing necessary changes in TTCN codes in a word CR document**
  - **Support information (log file) showing Pass verdicts against two types of UE and PICS/PIXIT values setting**
- **Only the word CR documents forwarded to RAN for agreement**
- **TTCN CRs stored** ftp://ftp.3gpp.org/tsg_ran/WG5_Test_ex-T1/TTCN/TTCN_CRs
- **TTCN CR RAN5 approval status announced weekly by RCM at**
  - 3GPP_TSG_RAN_WG5_SIG@list.etsi.org
- **The approved TTCN CRS implemented by MCC task 160 and integrated into the existing ATSs for deliveries**

TTCN result & status (1) - FDD

- **Core spec baseline: Dec. 04, Rel-5**
- **R99 branch applied for WI-10, WI-12 tests and for WI-15 (A-GPS) test**
  - **Simulating R99 and Rel-5 UE behaviors in R99 network**
- **Rel-5 branch applied for WI-13, WI-14 (HSDPA) tests**
  - **Simulating the Rel-5 UE behaviors in Rel-5 network**
- **UE security aspect is set to mandatory for test**

TTCN result & status (2) - FDD

GCF WI & package	Approved	Submitted for approval	Rest	Grand Total		Approved %		reserved TCs		TCs to be submitted to reach next milestone	
WI-010 P1	96	1	2	99		97		0			
WI-010 P2	88	0	7	95		94	*)	2			
WI-010 P3	84	1	8	93		90		0			
WI-010 P4	89	0	7	96	**)	93		2			
Grand Total WI-010	354	5	24	383		93		4		4	95%
WI-012	31	0	13	44	***)	70		3		11	95%
WI-013	0	0	1	1		0		0		1	100%
WI-014	4	4	44	52		8		8		34	80%
WI-015	0	0	21	21		0		0		17	80%
Grand Total	389	9	103	501		78		15			

*) 1 of the package 2 test cases has been suspended by RAN WG5
**) 6 of the approved test cases and one submitted are GERAN ones
***) 3 of the approved test cases and one submitted are GERAN ones

TTCN result & status (3) - LCR TDD

- **CCSA / TDIA TTCN experts working for LCR TDD protocol and signalling test**
- **60% of WI-10 TTCN TCs adapted from FDD into TDD**
  - **Not yet verified**
- **Baseline: March 03, Rel-4**
- **80% of WI-10 will be adapted by end of this year**

Task 160 /272 funding in 2005

Sources	Funding (k€)	Resource as Free-of charge in man months	Notes
3GPP funding	793		58 mm for task 160, 3 mm for task 272
TDIA		17	LCR TDD
R&S		4	HSDPA
GSMA	78		
GCF	39		RCM
Qualcomm		4	A-GPS
Cingular	39		HSDPA
Total	949 k€	25 mm	

Requests

- **3GPP re-organization transferred MCC task 160 to RAN / RAN5**

- **RAN / RAN5 provide guidelines, agree the results and request the necessary funding at PCG /OP meeting for MCC task 160**

- **Request RAN to agree the revised ToR (RP-050263)**

- **Request RAN to approve this report**
  - **The approval of the report is the precondition for the payments of the experts in MCC task 160**