








RAN5 Conformance Test & TF160 TTCN Work

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-  TSG RAN5 & UE conformance tests
-  ETSI TF160 and TTCN test suites
-  TDIA contributions to TDD TTCN
-  What is new in TTCN for 2013
-  Conclusions

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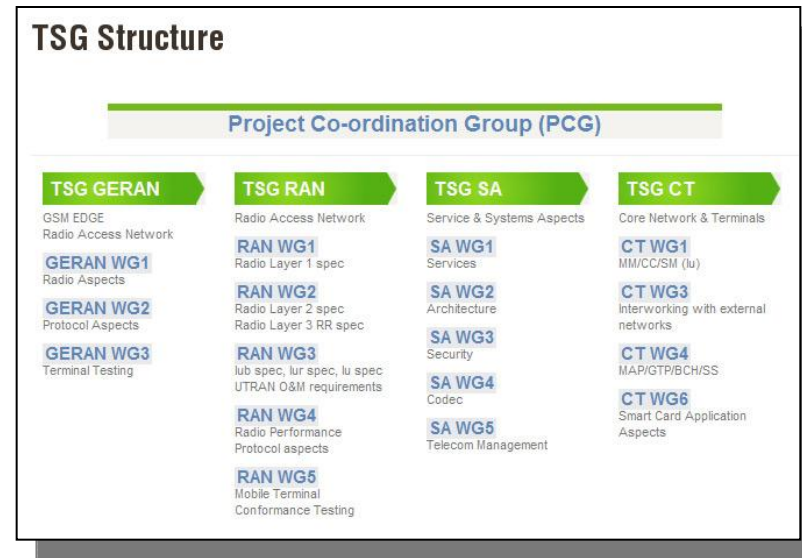
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TSG RAN5 & UE conformance tests

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3GPP TSG RAN WG5 is a working group under RAN

Responsible for the development of UE conformance test specifications



- Working at radio interface (Uu) for UTRA, E-UTRA and beyond
- The main conformance requirements specified in TSG RAN2, RAN4 and TSG CT1
- But also the requirements specified in TSG GERAN and the relevant specifications of 3GPP2, IETF, ETSI

 **RAN5** has responsibility for UTRA, E-UTRA & beyond for the following areas:

- RF conformance test for FDD & TDD
- RRM conformance and performance test for FDD & TDD
- Protocol & signalling test for FDD & TDD
- IMS test, including profiles, such as VoLTE etc.
- interRAT between E-UTRA, UTRA & different technologies, including
 - GERAN,
 - CDMA 2000 (1xRTT, HRPD)

 **RAN5** has two sub-working groups

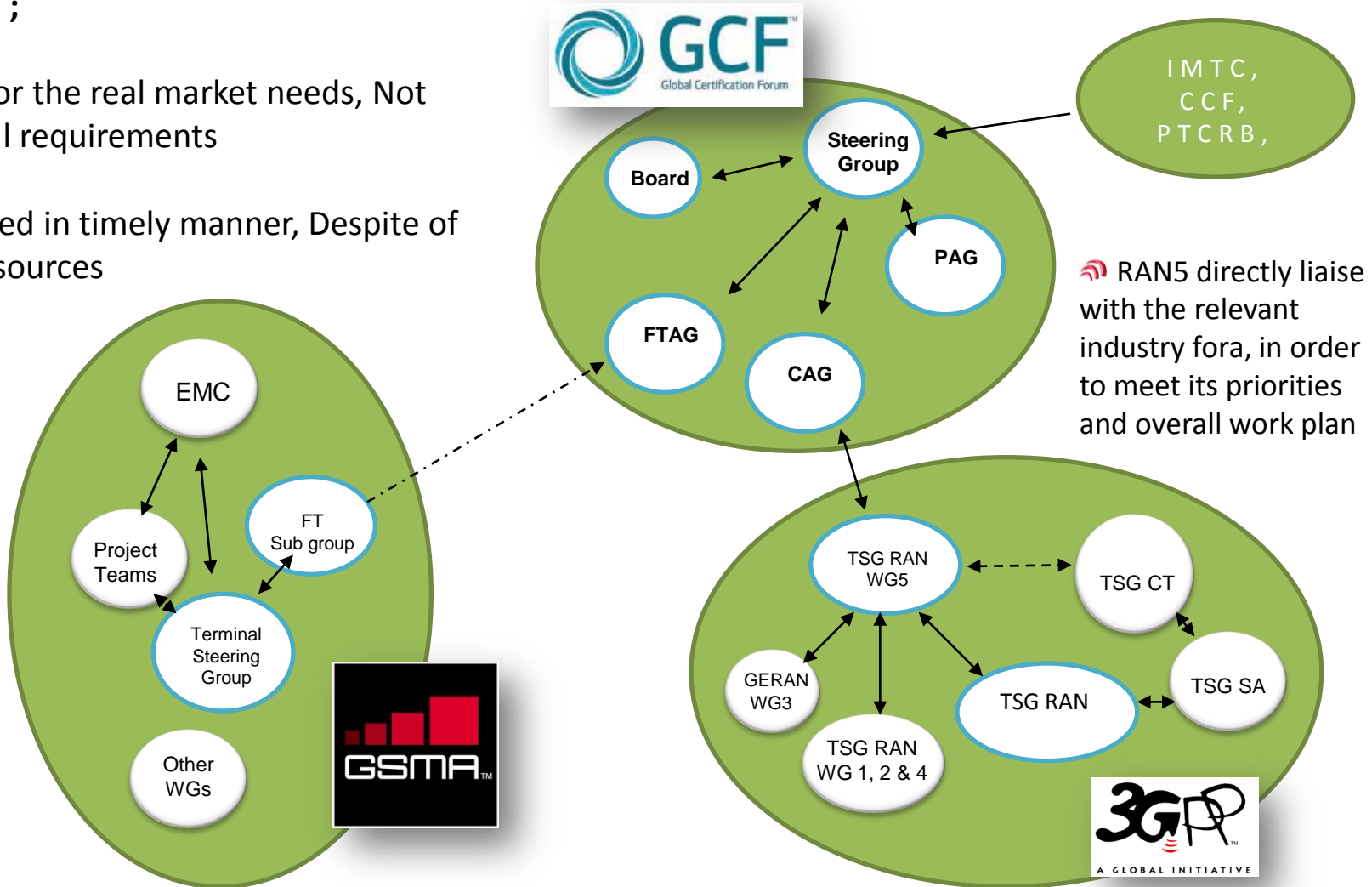
- RF
- Signalling

RAN5 & Industry Fora

Test specs ;

☞ Cater for the real market needs, Not theoretical requirements

☞ Produced in timely manner, Despite of limited resources



☞ RAN5 directly liaise with the relevant industry fora, in order to meet its priorities and overall work plan



ETSI TF160 & TTCN test suites



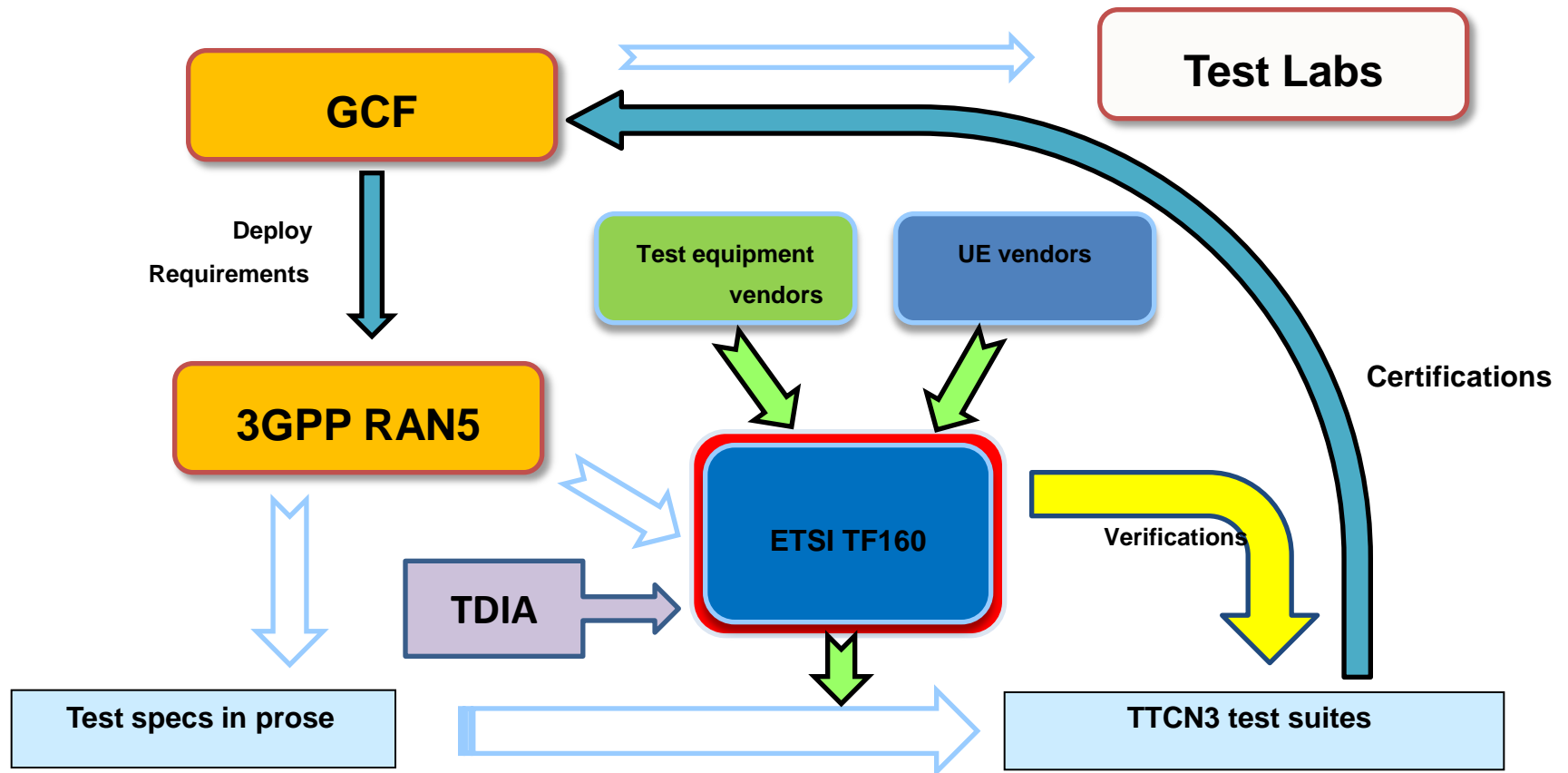
RAN5 & TF160



- 📶 All RAN5 protocol & signalling test specs are written in prose in great detail
- 📶 RAN5 provides also the formal, standardised test specifications in TTCN as the Reference Test Suites for the test industry
 - Testing & Test Control Notation – the most advanced and widely used test language for testing
- 📶 TF 160 is responsible for transferring RAN5 test specs from prose to the TTCN
- 📶 RAN5 coordinates & provides guidelines to TF160 on the priorities in the development TTCN test cases
- 📶 The TTCN test cases agreed by RAN5 are deployed in the UE certifications by GCF and PTCRB.

TF160 in the chain of TTCN production

- MCC TF160 responsible for the TTCN development, maintenance and deliveries for the UE conformance test in UMTS and LTE





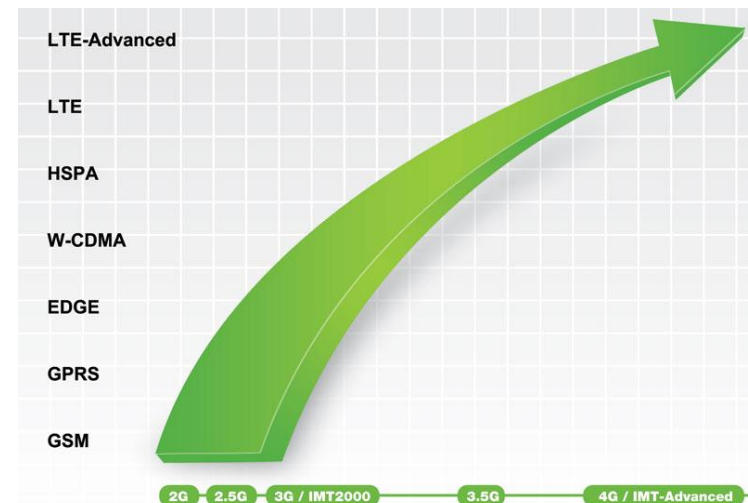
TF160 - TTCN expertise pool



- 📶 TF160 is the 3GPP TTCN pool of experts
 - Nearly 20 experts from 3GPP member companies
 - Resources shared by RAN5 & GERAN3
- 📶 3GPP provides funding of 754 k€ / year
- 📶 Voluntary contributions (funds or expert man-power) from 3GPP member companies and MRP, such as TDIA
 - In volume of 250 k€ / year
- 📶 TF160 is located at ETSI
- 📶 An testing expert is appointed as leader, by ETSI
- 📶 ETSI provides further administrative and logistic services

- 📶 TF160 develops 200 new TTCN test cases / year
- 📶 Current test baseline 3GPP Rel-10
 - Every year upgrade test baseline to a later Release
- 📶 Continuously maintains and delivers the existing 2500 TTCN test cases
 - 4 deliveries / year for UTRA test suites
 - 6 deliveries / year for E-UTRA test suites
- 📶 Test coverage
 - UTRA FDD, UTRA LCR TDD, including interRAT
 - EPS/LTE FDD, TDD, including interRAT
 - UE positioning
 - IMS

- 📶 RAN5 prioritises and makes the conformance test specs based on market requirements
- 📶 3GPP OP and the other sources provide the funds
- 📶 ETSI organizes a Specialists Task Force (TF160) to produce the Reference Test Suites for the test industry
- 📶 This model works well and has successfully provided the verified test suites ahead of
 - UMTS launch
 - LTE launch





TDIA Contributions to TDD TTCN



TDIA and TTCN for TDD



- 📶 Since the beginning, TDIA, CATT and CATR have recognized the TTCN working model for TTCN development for TDD
- 📶 As one of the largest supporters and voluntary funding-contributors for 3G Conformance Testing TTCN development, TDIA has joined the MCC TF160's work since 2004.
- 📶 More than 600 TDD test cases have been developed by TF160 and TDIA at ETSI and delivered by 3GPP, many these test cases are being used by CATR for TD-SCDMA UE certifications in China.



TDIA and TTCN for TDD



- Supported by the project - “TD-LTE TTCN code Development” of “National Science and Technology Major Projects - New generation of broadband wireless mobile communication networks”, more than 20 man-months per year from TDIA have been used for TD-LTE TTCN development at ETSI since 2009.
- More than 95% of the TD-LTE TTCN test cases in Rel-8 have been validated by 3GPP and GCF, ready to deploy in commercial TD-LTE UE certifications worldwide.



What is New for TTCN in 2013

Tasks of TF160 in 2013

A single test architectural model applied to all Rel-10 tests

- Containing multiple parallel testers
- Handling different 3GPP data structures: ASN.1, CSN.1, XSD

New test areas cover:

- Voice call (VoLTE, emergency call) & call continuity test
- LTE-A (CA test)
- UTRA / E-UTRA small improvements & enhancements (MDT, ANR, UE positioning, NIMTC, 3C/4C HSDPA etc.)





Conclusions



- 📶 TTCN working model will continue being applied to any new and future technologies
- 📶 TDD keeps 6 months behind the FDD TTCN development, to maximise on efficiency and effectiveness
 - Half the effort for double the results!
- 📶 Aim to continue and broaden the cooperation with TDIA for the future TDD TTCN development



Thank You !



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Statistics

7638 unique visitors average per day

3GPP Satisfaction Survey

5 minute survey Please help us by completing the new 2012 Survey. Take the Survey

TSG Structure

Project Co-ordination Group (PCG)

TSG GERAN	TSG RAN	TSG SA	TSG CT
Overview RAN WG1 RAN WG2 RAN WG3 Terminal Testing	Public Access Networks RAN WG1 RAN WG2 RAN WG3 RAN WG4 RAN WG5 RAN WG6	Service & Systems Aspects SA WG1 SA WG2 SA WG3 SA WG4 SA WG5 Telecom Management	Core Network & Terminals CT WG1 CT WG3 CT WG4 MAP/GTP/BOHSS CT WG6

More Information about 3GPP:

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