Certification News

GCF
Global Certification Forum

GCF prepares for certification of Dual-SIM/"All-Mode" devices

With growing support from the country's regulator and operators, momentum is building behind the concept of "All-Mode" devices in China. Incorporating FDD and TDD 4G LTE, 3G WCDMA, TD-SCDMA, cdma2000 and GSM, across all the bands licensed in China, the "All-Mode" proposition aims to benefit consumers by increasing the choice of devices that can be used on any of the Chinese networks while raising overall quality in the market through improved economies-of-scale.

A uniform, systematic and trusted testing regime such as GCF Certification will be required to deliver "All-Mode". GCF's Steering Group has approved a Work Item Proposal for the interoperability testing of Dual-SIM Multi-Standby functionality - a key element of "All-Mode". This functionality has been specified by the China Communications Standards Association (CCSA) to allow these versatile products to be used effectively. Once activated, this Work Item will enable products that meet "All-Mode" requirements to be easily identified on the GCF database of certified devices. Dual-SIM functionality is also attracting interest in Europe.

As GCF Certification tests all functionality implemented in a device, the GCF device database can already be used to identify devices that meet particular functional requirements. At a workshop in Dubai in July co-hosted by GCF and the United Arab Emirates' operator du, delegates discussed whether other relevant regional-specific device attributes could also be captured in the device database and thereby increase the visibility and improve the supply of devices that meet the needs of a particular region. A device that operates across all mobile technologies and in all bands deployed across the Middle East and North Africa and that also incorporates Arabic language support would have a distinct advantage in a market of more than 400 million people. The idea of using a regional profile to facilitate the pre-configuration of VoLTE or other service layer settings for operators across a region was also discussed.

In discussions between GCF and the Telecommunications Regulatory Authority (TRA) on the fringes of the workshop, the UAE regulator confirmed that in its experience certified devices suffer from fewer performance issues than uncertified products.

GCF working on new certification scheme for platforms

GCF's Steering Group continued to refine the principles for a Platform Certification scheme at its meeting in Shanghai in September.

Platform Certification is being developed to reduce certification costs and time-to-market by making it easier for a manufacturer to incorporate pre-certified functionality in their devices. GCF defines a platform as a hardware or software subsystem that provides functionality within the scope of GCF.

The new scheme will extend a principle that is already in place for wireless modules that can be used to add mobile connectivity to other devices. A streamlined certification process is available for devices that incorporate a GCF-Certified module where testing is focused on areas relating to the integration of the module in the finished product rather than the functionality of the pre-certified module.

The work on Platform Certification is expected to be finalized before the next Steering Group meeting in Dubai in December. In parallel, work will start on the implementation of the necessary processes within GCF's online tools.

SG approves Work Items for LTE Bands 66 & 41

Steering Group (SG), GCF's principal decision making body, met in Shanghai, China, between 28-29 September for SG#68. The meeting was hosted by Tech Mahindra. As well as receiving reports from all GCF's Agreement Groups, Task Forces and Board Committees, SG Delegates also received updates on the status of IoT and Conformance testing standardisation work within 3GPP RAN5 and a number of liaison statements from other industry bodies on topics of mutual interest.

In addition to the new "All Mode" initiative reported on Page 1, the following Work Items Proposals were approved and will be taken forward by the relevant Agreement Group.

Band 66

As demand for mobile broadband services continues to grow, new bands are still being released for LTE deployments around the world. Band 66 is an extension of the US Advanced Wireless Services band at 1700/2100 MHz which is being deployed by Verizon Wireless and will now be added to a range of existing LTE-related umbrella work items to allow devices supporting the band to be fully certified. The Work Item proposal also identified sub-work items that will cover inter-band, MBMS, and intra-band carrier aggregation usage scenarios for Band 66 devices.

Conformance testing

Band 41 power class 2 operation, High Power UE is a 3GPP feature introduced to allow single carrier Uplink operation for TDD Band 41 power class 2 (+26 dBm). This Work Item will ensure the efficient operation of Band 41 networks.

Conformance testing is to be introduced for the 3GPP Rel-12 feature Network-Assisted Interference Cancellation and Suppression for LTE. This will test the performance of advanced Interference Cancellation (IC) or Interference Suppression (IS) receivers with network assistance. The feature allows operators to achieve higher network capacity under co-channel interference.

ETSI has released new specifications to extend the capabilities of NFC-enabled devices by providing toolkit features for new contactless use cases, enabling the use of multiple secure elements and updating several existing NFC features. GCF will introduce conformance testing of features based on the extended ETSI standards.

At switch on, or following recovery from lack of coverage, a mobile device selects the registered network (PLMN), or an equivalent home network (EHPLMN) if one is available, using all access technologies that it supports. The device attempts to perform a Location Registration. An alternative option has been established as an exception.

If the mobile device is in automatic network selection mode and it finds coverage of an EHPLMN, the device may register to the EHPLMN and not return to the registered PLMN or equivalent PLMN. If the EHPLMN list is not present or is empty, and the HPLMN is available, the device may register on the HPLMN and not return to the registered PLMN or equivalent PLMN. The operator is able to control whether mobile devices can support this option through SIM configuration. A new test case has been created by 3GPP to verify the correct behaviour of a device supporting Last RPLMN Selection Indication PLMN selection exception which will now be brought within GCF.

Field Testing

With the introduction of high-speed trains (HSTs) in China, Japan, Korea and many European countries, the performance of mobile devices used by train passengers can be impacted by high Doppler shift and the consequent decrease in the demodulation performance.

A High Speed Train use scenario has been defined since 3GPP Rel-8 for train velocities up to 300 km/h. Speeds above 350 km/h are currently being investigated in 3GPP.

GCF has anticipated work in GSMA which is now proposing to add HST test cases to GSMA TS.11 - the test book which is the basis for much of GCF's interoperability and field trial testing. GSMA's new tests will cover:
· System Access & Registration
· Reselection in Idle Mode
· Handover and Throughput Measurement - FTP Downlink
· MO Voice Call with CS Fallback (UTRAN)
· MO Voice Call with CS Fallback (GERAN).

GCF has agreed a new Work Item Proposal to verify that LTE devices work correctly on the mobile networks that have been deployed by operators to serve high-speed railway passengers.

OTA Performance Testing to be extended to Phablets

The Performance Metrics programme complements GCF Certification by defining standardised techniques for reporting on agreed device attributes with a view to replacing individual operator test methods and requirements.

The programme already includes Performance Testing of Over-the-Air antenna performance. These tests use a "Phantom Hand" to provide a realistic and reproducible testing environment. However, the Phantom Hand currently specified is only appropriate for devices up to 72 mm wide. SG#68 approved a Performance Item that will enable the Performance Agreement Group to adapt the performance testing criteria for a new Phantom Wide Hand recently specified by CTIA for testing devices between 72 mm and 96 mm wide.

Performance Metrics are developed and maintained by the Performance Agreement Group.

Carrier Aggregation and LTE remain priorities for GCF

GSA, the Global Mobile Suppliers Association, has reported that global LTE subscriptions totalled 1.45 billion at the end of Q2 2016 and that 521 operators in 170 countries had commercially launched LTE or LTE-Advanced.

Supporting 3GPP's ongoing efforts to augment and enhance the capabilities of LTE remains a major focus for GCF's Conformance Agreement Group (CAG) which is responsible for introducing and maintaining Certification Criteria relating to the conformance testing of devices.

Two meetings of CAG have taken pace since the last issue of Certification News.

CAG#46 was hosted by Tech Mahindra in Newark, New Jersey, USA, on 26-27 April while IOTAS were hosts for CAG#47, held in Gerrards Cross, just outside London in the UK, at the end of June.

The meetings activated new Work Items covering a number of areas of great importance to the wider industry, especially Carrier Aggregation, enhancements to LTE and the Internet of Things.

Carrier Aggregation

With 18 FDD LTE and 5 TDD LTE bands currently included in GCF Certification, the number of possible Carrier Aggregation combinations is vast. CAG is actively exploring how to limit testing costs by:

- Managing CA Certification Criteria in a clear, unambiguous way
- Driving efficiencies in validating CA tests whilst maintaining the test quality

Rel-12 Configurations for LTE Advanced Carrier Aggregation with 3 downlink carriers have been activated for the following band combinations:

- 1A-3A-5A; 1A-3A-26A;
- 1A-18A-28A; 1A-19A-21A
- 2A-4A-5A; 2A-4A-13A

Certification of CA has also been activated for band combinations:

- 2A-2A; 2A-5A; 19A-21A; 25A-25A

Other recent LTE-related Work Item activations have covered:

- Rel-12 Single Radio Voice Call Continuity in the pre-alerting phase

(before ringing) (bSRVCC) for FDD Bands 01, 03, 19, 21, 28 and TDD bands 38, 39, 40 and 41

- Rel-11 Improved Minimum Performance Requirements for Interference Rejection in TDD Band 39
- Rel-11 MBMS Service Continuity for FDD bands 01 and 03 and Inter-Band Service Continuity for FDD Bands 01 and 03
- Rel-11 Enhanced Minimization of Drive Test (eMDT) for FDD Bands 01, 03, 19, 21 and 28
- Rel-10 & Rel-9 EPS Enhancements for TDD Band 42

In addition, Rel-9 EPC FDD/TDD Dual mode has been activated for:

- FDD Band 03 - TDD Band 42
- FDD Band 19 - TDD Band 42
- FDD Band 21 - TDD Band 42

UICC-based NFC services remain a priority for many GCF Operator Members. A Work Item relating to Release-8 NFC Forum Analog & Digital test cases was activated at CAG#47 while a Work Item Description – a key milestone in the development of certification criteria - was approved for Rel-9 UICC based NFC Services at CAG#47.

IoT

GCF prepares to support roll-out

The ability to certify devices against 3GPP Rel-13 features that support the Internet of Things (IoT) is of keen interest to the GCF membership.

Work Item descriptions have already been approved within CAG covering different aspects of IoT including:

- NB-IoT Protocol, RRM and RF Conformance
- eMTC (Cat M1 and coverage enhancements (CE) modes A & B)
- EC-GSM for support of Cellular Internet of Things

GCF rules require that 80% of required test cases must have been validated on commercially available test before a Work Item can be activated. CAG may hold a supplementary "bis" meeting between its scheduled January and April meetings in 2017 if more meeting time is required to approve test case validations.

In addition, CAG#47 agreed on a way ahead for the certification of LTE Category 1 devices with a single Receive antenna.

GCF events and workshops

Meet GCF in South Africa, France, India or Spain

GCF General Manager Lars Nielsen gave a keynote presentation on the testing challenges of LTE and LTE-Advanced devices at the China Telecom Technology Forum on 16 July. He also talked about how functionality and features such as VoLTE, Carrier Aggregation and eUICC fit into device testing and certification requirements and described how the GCF is preparing for IoT and 5G.

Tim Evans, Steering Group Chair and Lars Nielsen represented GCF at the NGMN Industry Conference & Exhibition in Frankfurt, 12-13 October which focussed on 5G evolution.

At LTE Africa in Cape Town (15-17 November), GCF General Manager Lars Nielsen will be joining a session on "Standards, Certification and Regulation" led by Adrian Scrace, CTO of ETSI and Head of 3GPP MCC. Lars will speak on the topic of "Global Expectations for LTE & 5G Certification – Is 'Test once, use anywhere' possible in the 5G era?"

GCF will also be attending the oneM2M Showcase at the ETSI IoT/M2M Workshop in Sophia Antipolis, France, on 17 November.

A second two-day GCF workshop for Indian market stakeholders will be held on 23 & 24 November in Mumbai. The workshop will be hosted by Reliance Jio.

Looking further ahead, GCF will once again be attending Mobile World Congress in Barcelona, 27 February - 2 March 2017.

To pre-arrange meetings at any of the industry conferences, or to participate in the GCF India workshop, contact gcf@globalcertificationforum.org.

Membership Matters

GCF has welcomed the following new members since the last edition of Certification News:

Associate Manufacturers

- Cradlepoint, USA
- Cyber Physical Systems, USA
- Maxcom, Poland
- MiTAC, Taiwan
- NimbleLink, USA

Associate Operators

- Broadband Belgium, Belgium
- Sistema Shyam Teleservices (MTS), India

Observers

- Centum, Spain
- MBit Wireless, USA

As at SG#68, GCF membership stood at 295 companies:

Operators	128
Manufacturers	74
Associate Manufacturers	19
Observers	73
Client Vendors	1

For more information on GCF membership, download our brochure at bit.ly/GCF_brochure

Field Trial Agreement Group

Field testing is a unique feature of GCF Certification. Testing against field trial scenarios on live networks provides invaluable insight into the real-world interoperability of a device.

For each feature being tested, field trials are performed on live networks on a specified number of infrastructure combinations.

New Field Trial scenarios are introduced through GCF's standard Work Item process. Once a proposal has been approved by Steering Group, the new Field Trial scenario is developed and activated by the Field Trial Agreement Group.

FTAG typically meets immediately after the Conformance Agreement Group in the same locations.

FTAG#43 was co-located with CAG#47 in Newark. Work Item maintenance was undertaken to retain alignment between GCF and recent updates the GSMA TS.11 test book on which many of GCF Field Trial tests are based. In addition, members activated VoWiFi and cdma2000 work items.

The meeting also discussed how to conduct field trials for devices that use embedded UICC (eUICC) and initiated a number of process updates in order to clarify how Field Trial testing on different networks can be conducted by downloading different SIM profiles to the eUICC.

Steps are also being taken to fine-tune Field Trial processes for Carrier Aggregation as the functionality is often triggered by network policy rather than by the device.

The Agreement Group is also investigating the practicalities of field trialing VoLTE given that there is currently no standardisation in terms of device or network parameter settings. GCF continues to liaise with GSMA, who are also studying the challenges, with a view to proposing defaults and a tightening of standards.

GCF people

At an Extra-Ordinary General Meeting of GCF held in Bristol, UK, in June, Mariano Martinez of Telefonica was elected to the GCF Board of Directors.

Three Operator and three Manufacturer Board seats fall due for election at GCF's Annual General Meeting in early December.

Any Full Member of GCF that has attended at least one Steering Group meeting and another Steering Group or Agreement Group meeting in the twelve months prior to the closing date for nominations (31 October 2016) and does not already hold an elected Board seat for 2017 can nominate a candidate.

Operator Members have re-elected Tim Evans of NTT DOCOMO to serve a second term as SG Vice-Chair and Chair. He will sit as SG Vice Chair in 2017 and SG Chair in 2018.

New Test Platforms

Devices are tested on test platforms that have been independently validated for the relevant conformance certification criteria. A list of all available validated Test Platforms is available to interested members on the GCF Device Certification Criteria Database (DCC).

Three new test platforms were introduced during CAG#46 and CAG#47:

- TP153: KEOLABS NFC Forum Conformance test tool
- TP197: COMPRION NFC Forum Analog Test Solution
- TP198: Keysight T3111S NFC Conformance Test System