Certification News

GCF lays foundation for 5G device certification

GCF's Steering Group has approved a Work Item that lays the foundation for the certification of 5G devices based on 3GPP Release 15.

The Work Item will cover options from both the Non-Stand Alone (NSA) Phase 1 & 2 and Stand Alone (SA) Phase 1 5G System modes of operation. Further Work Items will be introduced for later phases of 5G and Field Trials. The development of NSA was agreed by 3GPP in March 2017 as an intermediate mode anchored in the LTE Evolved Packet Core (EPC) network with 5G New Radio (NR) being used to boost data-rates and reduce latency. 3GPP finalised specifications for NSA in December 2017 at the TSG RAN Plenary Meeting. Standards for the SA mode, in which NR will connect to the new 5G Core (5GC) network, is scheduled for completion in June 2018.

Conformance testing of 5G within GCF will draw on test cases defined by 3GPP's RAN5 Working Group. The new Work Item anticipates the development of multiple sub-Work Items to cover various areas for which conformance test cases are under development. These areas currently include radio reception, transmission and performance; radio resource management (RRM); positioning; radio access protocols; core network protocols and IMS protocols.

"This Work Item is an important milestone for GCF, marking the start of our formal participation in 5G," said Lars Nielsen, General Manager of GCF. "Building on the work of 3GPP, GCF's focus will be on providing an effective and efficient certification scheme to support the commercial roll-out of 5G devices and services worldwide."

Separately, GCF has already agreed to make a significant one-off financial contribution to the development of the required 3GPP TTCN-3 test cases. TTCN-3 (Testing and Test Control Notation version 3) is the ETSI-standardised programming language which is used for 3GPP protocol test cases. This commitment will help ensure that 5G device testing and certification are available in time to support industry initiatives such as the NGMN 5G Trial and Testing Initiative (5G TTI) and early standards-compliant deployments of 5G in late 2018 and early 2019.

## GCF to certify LTE for critical communications

GCF is extending its certification scheme to critical communications devices. A new Work Item covering Mission Critical Push-to-Talk over LTE (MCPTT) was approved by GCF's Steering Group (SG) in December. The required test cases are expected to be finalised by 3GPP RAN5 during Q1 2018, paving the way for MCPTT device certification to start later in the year.

In response to demand from public safety authorities for access to secure wireless broadband communications, 3GPP is developing specifications to deliver a variety of mission critical capabilities over LTE networks. Significant public safety services networks based on LTE are currently being deployed in South Korea, the UK and the USA as well as in several other regions and municipalities across the globe.

MCPTT provides enhanced voice-based push-to-talk communication based on the 3GPP Evolved Packet System (EPS), leveraging Group Communication System Enablers (GCSE) and Proximity-based Services (ProSe). It is part of Release 13 of the 3GPP specifications. The functionality will find applications across public safety, utilities, transportation and other commercial sectors.

LTE takes over as most certified mobile technology in 2017

57 manufacturers certified a total of 521 mobile devices in 2017 according to the annual Mobile Device Trends report from GCF.
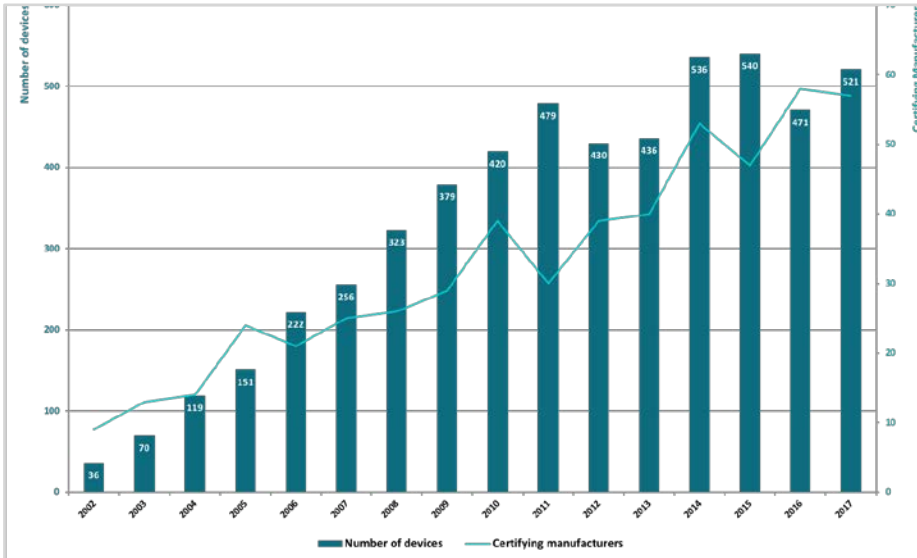
number of possible band combinations is growing exponentially. Carrier Aggregation was certified in 216 devices in 2017 – 42 per cent of all devices. Just seven per cent of devices certified in 2016 supported Carrier Aggregation.

VoLTE was certified in 260 devices – 59 per cent of LTE devices – while TD-LTE was a feature of 40 per cent of all certified devices.

Certified devices ranged from simple single-mode, single band products to highly integrated devices incorporating five bearer technologies capable of operating over 37 different frequency bands. The "average" certified device in 2017 incorporated three technologies

Total certifications increased by 10 per cent from the 471 devices certified in 2016.

84 per cent of the certified devices incorporated LTE, up from 76 per cent in 2016. Two thirds of all devices incorporated LTE, 3G and GSM, up from 60 per cent in the prior year.

LTE modules

For the first time, LTE also accounted for more than half of all certified single mode devices: GSM was the bearer in another 33 per cent of single mode devices.

The proportion of devices incorporating 3G and GSM are now both in decline. 3G penetration fell from 85 per cent in 2016 to 82 per cent in 2017 while GSM penetration continued its gradual decline from 84 per cent to 81.

CDMA2000 is still a viable technology with eight per cent of all certified devices supporting this feature.

The GCF scheme currently enables the certification of LTE devices operating in 23 FDD bands and six TDD bands and provides a robust method for verifying the correct operation of Carrier Aggregation, where the

2017 Certified devices by type
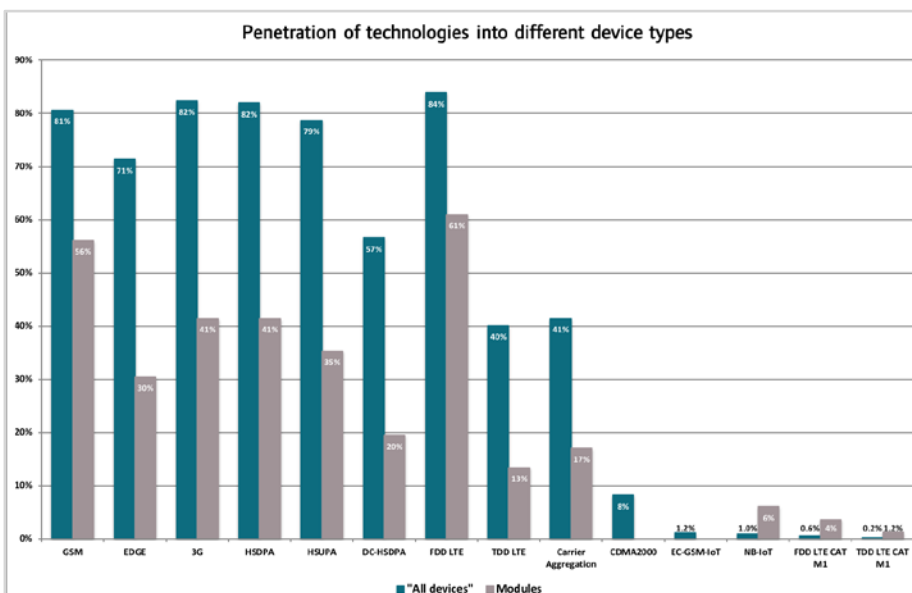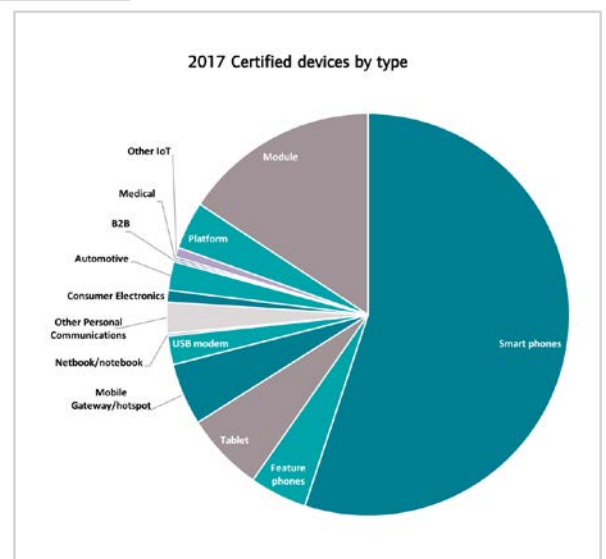
and 13.4 frequency bands.

Smartphones accounted for 55 per cent of all certifications while wireless modules, designed for adding mobile connectivity to other products, made up 16 per cent of certifications. 2017 saw the certification of the first modules offering the 3GPP LPWA cellular IoT technologies NB-IoT, LTE CAT M1 and EC-GSM.

Pick-up a copy of the full report at MWC

Copies of the full Mobile Device Trends report will be available from the GCF executive meeting room at Mobile World Congress.

Penetration of technologies into different device types

Steering Group approves new eSE, eDECOR and MTSI Work Items

In addition to the 5G and MCPTT Work Items reported elsewhere in Certification News, members also approved the following Work Items at SG#73:

Embedded Secure Element-based NFC services

This Work Item will expand GCF's coverage of UICC-based NFC services to include devices that make use of an embedded Secure Element (eSE) as a secure execution environment. It will accommodate recent additions to GSMA's TS.26 NFC Handset Requirements and TS.27 NFC Handset Test Book enabling service providers to leverage a homogeneous and reliable set of features for developing and deploying new NFC services.

Enhancements of Dedicated Core Networks

The scope of this work item proposal is conformance testing of 3GPP Rel-14 work item for Enhancements of Dedicated Core Networks for UTRA and LTE (eDECOR, Rel-14).

The diversity of device categories and customer types using mobile networks is increasing rapidly. These different segments may have very different requirements of the core network in terms of feature support, traffic characteristics, availability, congestion management, ratio of signalling to user plane traffic, etc.

To help meet this challenge, 3GPP has developed Dedicated Core Networks (DCNs). Consisting of specialized core network elements designed to meet the requirements of different devices or customers, DCNs can be cost-effective: network availability or redundancy requirements may be more easily met with alternative hardware and/or software to the existing core network. The creation separate core networks also allows different users or traffic to be

A chilly Guildford in Surrey, UK, was the venue for a warm SG#73 and GCF's 10th Annual General Meeting in December 2017. The meetings were kindly hosted by GCF FT-RTO, IoTAS.

isolated from each other and enables user-specific features to be provisioning and scaled independently.

DECOR was enhanced in Release 14 and now includes provisions for the network to modify certain aspects of a device's status relating to attach and mobility. The new Work Item will add the relevant protocol conformance test cases to the GCF certification of devices that support Rel-14 eDECOR.

Multimedia Telephony Services for IMS

Steering Group agreed to update an existing Work Item covering the certification requirements for the Voice and Supplementary Services of the GSMA VoLTE initiative. GSMA IR.92 "IMS Profile for Voice and SMS" defines a common recommended feature set for 3GPP Multimedia Telephony Services for IMS (MTSI).

The following areas of GSMA IR.92 technical profile of MTSI will be covered in this work item update:

- Multimedia Telephony Call setup (speech, text)
- Supplementary services
- Codec selecting

IoT update

GCF's IoT Agreement Group continues to meet regularly as it works to identify the scope of testing and certification requirements for 'Internet of Things' (IoT) devices and applications.

The new group's focus is to support the certification of the service and application layer of various IoT technologies, starting with oneM2M.

The group will also be working closely with CAG/FTAG to ensure service interoperability with radio access layer technologies based on the 3GPP Mobile IoT standards such as NB-IoT, LTE Cat-M1 and EC-GSM. Other IoT standards will be addressed in the future.

During SG#73, 2 oneM2M Work Items were approved:

- oneM2M Interoperability Testing
- oneM2M Conformance Testing

These Work Items will focus on the certification requirements of end products that comply to oneM2M and interoperate with back end nodes over the M2M service layer.

Manufacturers, developers and functionality providers beyond GCF's traditional participants are encouraged to bring their experience and insight into the IoT Agreement Group.

Contact the GCF Office to get involved, or meet us at Mobile World Congress.

Please Share!

Feel free to share this newsletter with colleagues, customers, suppliers or partners involved in the design, manufacturer, testing, procurement or use of mobile devices

CAG & FTAG meet in Singapore

The first meetings in 2018 for GCF's Conformance Agreement Group and Field Trial Agreement Group were held in Singapore in January, kindly hosted by Rohde & Schwarz.

CAG activated a total of 44 Work Items nine of which extended conformance testing for the LPWA cellular IoT technology LTE CAT M1. Many of the new certification criteria related to spectrum bands in which CAT M1 is being deployed in the United States.

An NB-IoT Work Item was also activated across six bands widely allocated to operators in Europe, Asia and Latin America.

Carrier Aggregation

CAG also extended GCF's conformance testing coverage for Carrier Aggregation, adding three new 2DL band combinations and another 3DL combination.

New CA band combinations were also introduced for dual-mode FDD/TDD operation in LTE devices. Four of the combinations are being deployed in Japan and one in South Korea.

The meeting also activated Work Items relating to GSMA's RCS Crane Priority Release and continued its work to bring Remote SIM Provision- ing within the scope of GCF certification.

FTAG reaches 50

FTAG delegates celebrated the landmark of the 50th quarterly meeting of the Field Trial Agreement Group.

The meeting updated several existing Work Items to align with the latest version of GSMA TS.11, the primary source of test cases used by GCF for field trials.

Testing was also introduced for emergency calls over VoLTE.

Delegates also discussed the future evolution of field trial testing to support the growth in the number of cellular IoT devices being certified.

Meet GCF at Mobile World Congress in Barcelona

GCF is attending Mobile World Congress 2018 in Barcelona (26 February - 1 March) and we would love to meet you or your colleagues to discuss how our current initiatives may help support and grow your business.

GCF is currently working on:

- 5G device certification
- Certification for NB-IoT and LTE CAT M1 devices
- Certification of Remote SIM Provisioning functionality
- Platform Certification and pre-certified mobile communications functionality
- The role of certification for Mission Critical LTE communications
- GCF's regional initiatives in China, India and the Middle East
- Membership options for operators (including MVNOs), device manufacturers, test companies and other stakeholders in the mobile eco-system

At MWC 2018, GCF will have an executive meeting room (2.1C18Ex) on the upper walkway above Hall 2.

Contact gcf@globalcertificationforum.org to arrange a meeting.

We look forward to meeting you in Barcelona!

Membership Matters

GCF welcomed a total of 40 new member companies from 15 countries in 2017.

Twelve companies joined as Manufacturer Members, ten as Associate Manufacturer I and another seven as Associate Manufacturer II. Eight new members joined as Observers and three as Associate Operators.

The following companies have joined GCF since the last edition of Certification News:

Manufacturers

- Landi, China,
- PAX, China
- Xiaomi, China

Associate Manufacturers I

- Qolsys, USA

Associate Manufacturers II

- Intellastar, USA
- Lear, USA

Observers

- Allion, Taiwan
- Smartviser, France

For more information on GCF membership, visit our website

Critical Communications

The ability to demonstrate that devices conform to this standard will be of critical importance to all potential users; especially public safety authorities.

Mission Critical Video over LTE and Mission Critical Data over LTE have already been standardised within Release 14 while further enhancements are being developed for Release 15. These additional features could also be brought within the scope of GCF Certification at the request of GCF members.

MVNO organisational structures are being considered for several national, regional and municipal critical communications services that are being deployed on dedicated public safety and/or commercial LTE networks. GCF is extending its membership categories to include MVNOs which will make certification accessible to MVNOs including public safety network operators.

Certification of MCPTT will give all stakeholders confidence that devices meet the demanding requirements of critical communications use-cases

Harald Ludwig, Chair of the Technical Forum of TCCA, the representative organisation for the global critical communications market, gave a presentation during the SG meeting which updated GCF members on the growing global demand for mission critical LTE features. Mr Ludwig emphasised the importance of establishing testing and certification processes which avoid replicating existing schemes. A Memorandum of Understanding between GCF and TCCA has recently been updated committing the two organisations to work together in the interest of their respective members in areas related to 3GPP Mission Critical Services.

Welcoming the approval of the MCPTT Work Item Harald Ludwig said, "While TCCA acted as the certification authority for TETRA devices, we recognise that LTE is a more complex environment. GCF has already accumulated significant relevant expertise that allows manufacturers to demonstrate that their devices satisfy the demanding requirements of mission critical users."

"Mission critical use cases highlight the fundamental importance of device conformance and interoperability," said Lars Nielsen, General Manager of GCF. "We have been providing a clear and easily accessible scheme for the certification of LTE devices since 2010. As the globally-accepted quality mark for establishing confidence in interoperability, GCF is ideally placed to support the adoption of mission critical LTE by public safety authorities."

Test once, use anywhere

New website and members' portal

Our members' portal is the heart of the GCF certification process. This unique toolbox helps manufacturer members through the certification process and a wealth of valuable information including:

- the Device Certification Criteria database (DCC) which provides information on the criteria that need to be satisfied to certify a device,
  - available test platforms
  - test validations on different test

platforms and test case issues.

- Detailed information for operators on all currently certified devices

The members' portal has been re-launched on a new online platform which will offer even easier access to the all the tools and information while providing greater flexibility for GCF certification to evolve to meet the changing needs of

the industry.

GCF's public website has also moved to the new platform. One thing that has not changed is the URL.

www.globalcertificationforum.org