

Certification News

Connectivity: key to success for the Internet of Things

GCF extends certification to LTE Cat-M1, NB-IoT and EC-GSM-IoT

GCF certification, the scheme that reduces costs and increases confidence in mobile technology, is being extended to Internet of Things devices that incorporate any of the three carrier-grade IoT connectivity standards developed by 3GPP.

In June 2016, 3GPP published three new Low Power Wide Area (LPWA) wireless IoT connectivity standards for deployment in the licensed spectrum used by mobile operators. Cat-M1 and NB-IoT can be deployed on LTE networks while EC-GSM-IoT allows mobile operators to extend the return-on-investment from their legacy GSM networks and coverage. GCF enjoys a close working relationship with 3GPP and inputs industry insight into standards development as a 3GPP Market Representative Partner.

Connectivity quality will be a critical success factor for all IoT devices. GCF certification enables manufacturers to show that their devices conform with standards and will connect correctly and efficiently to mobile networks. By demonstrating a device is compatible with multiple mobile networks, GCF certification can significantly expand a manufacturer's addressable market thereby increasing economies of scale which could benefit end-users through a lower cost per connection.

GCF is currently validating test cases developed by 3GPP to define Certification Criteria that will provide a practical yet robust, industry-agreed framework for pre-launch testing of devices incorporating the three new IoT technologies.

Initial field trial test lists and quality criteria have already been defined for NB-IoT and Cat-M1.

Certification Criteria have also come on stream for the conformance testing of NB-IoT devices operating in several widely-deployed LTE Bands: 2100 MHz, 1800 MHz, 900 MHz and the European 800 MHz band. USIM and USAT interworking with NB-IoT have also been brought within the GCF scheme.

For Cat-M1, GCF already covers the two modes of the eDRX extended discontinuous reception feature that extends battery life - a crucial requirement for many IoT applications. Certification testing for eDRX functionality in EC-GSM-IoT devices is also being defined.

Testing and certification of devices against validated tests has already started. Further updates on IoT certification will be provided in future editions of Certification News.

LAA, Home eNB, OTA performance and WEA Work Items introduced

The incorporation of new technologies, features and functionality into GCF Certification is agreed collectively by operator and manufacturer members at quarterly Steering Group meetings and managed through a Work Item process. Hosted by Tech Mahindra in New Delhi in March, GCF's 70th Steering Group meeting introduced six new Work Items. Two of these cover the RSP-related testing requirements of eSIMs (see right). Three of the other Work Items relate to conformance testing while the fourth extends the scope of cdma2000 device certification with GCF.

License Assisted Access (LAA) for unlicensed spectrum

Studies into combining the use of licensed and unlicensed spectrum by 3GPP have
continued on page 2

Remote SIM Provisioning (RSP): GCF off to a running start

Remote SIM Provisioning (RSP) is a technology being defined by GSMA that allows the remote provisioning and the management of Embedded UICCs (eUICC). GSMA is encouraging certification bodies to bring RSP compliance into existing device and eUICC certification schemes.

GCF's April Steering Group meeting (SG#70) approved two new Work Items to define the conformance and field trial testing that will be required to ensure a device is compliant with the RSP technical specification.

SG#70 also established a dedicated Task Force - Remote SIM Provisioning Device Certification Task Force (RSPDC-TF). In discussion with GSMA, this Task Force will investigate whether a parallel stand-alone process can be developed to enable manufacturers to demonstrate RSP compliance in consumer devices that have not been submitted for full GCF certification.

With the early start to work on the relevant Work Items, GCF may be able to certify RSP-enabled devices as early as Q3 2017. GCF is also positioning itself to be able to implement any recommendations from the Task Force on any stand-alone scheme. This will provide the best opportunity to deliver RSP certification for consumer devices, in line with GSMA's expectations.

As RSP compliance has implications for a wide variety of stakeholders and certification bodies across the industry, GCF is opening its RSPDC Task Force email reflector to non-members who wish to follow the discussions. Any interested party that wishes to be added to the reflector should email the GCF Office.

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LAA, Home eNB, OTA performance and WEA Work items (from p1)

confirmed it is possible to adapt LTE to operate secondary cells in unlicensed spectrum. The studies also identified design options for a single global framework for LAA operation that achieves fair coexistence between Wi-Fi and LAA networks. CAG will develop a Work Item aimed at ensuring GCF certification is ready to cover LAA deployments as soon as related activities within 3GPP RAN5 are completed.

LTE Home eNB

3GPP introduced a number of enhancements to its Home eNB femto-cell functionality in Rel-9. These enhancements were designed to ensure service continuity, enable a new "hybrid cell" concept and improve mobility from and to closed subscriber group (CSG) cells.

Rel-9 conformance test cases for Home eNB Enhancements will now be added to GCF Certification to confirm interoperability between mobile devices and Home eNB LTE femo-cells. The Work Item covers three common scenarios:

- Manual CSG selection
- Idle-Mode Mobility support for Hybrid cells
- Inbound handovers to CSG, Hybrid or Open cells.

3G & LTE Over The Air (OTA) antenna performance

3GPP RAN5 has defined a new specification which improves antenna testing in 3G and LTE devices. GCF will introduce a series of conformance test cases that will update tests defined in an earlier Work Item. The new Work Item will introduce "Beside Head and Hand" testing methods.

Wireless Emergency Alerts for cdma2000

CAG2, GCF's technical Agreement Group that develops conformance Work Items for cdma2000 devices, will develop a new Work Item for Wireless Emergency Alerts (WEA).

A regulatory requirement in the United States formally known as CMAS, WEA is designed to disseminate emergency alerts to mobile devices in the United States and

is being implemented and supported on networks and devices across the country. Verification of the functionality is currently being done by each operator individually with each mobile device that supports it. Given that the technology is implemented in a standardised fashion by means of a common gateway, it would be more efficient for the wider industry if verification is undertaken as part of GCF certification.

Specific cell broadcast message types are defined in both 3GPP2 and 3GPP standards for different levels of emergency alerts. WEA tests will be executed in both cdma2000 and LTE test environments.

A corresponding Test Item Proposal for the creation of a conformance test specification for WEA was also approved by SG. (While GCF generally adopts test specifications defined by standards bodies such as 3GPP or GSMA, an equivalent body doesn't exist for cdma2000. GCF' Test Case Agreement Group defines any new test cases required for cdma2000 certification.)



Regional events & initiatives: India, MENA, China, LatAm

As a Global Certification Forum, GCF continues to meet and work with the industry worldwide at industry events and by holding workshops to address issues specific to different regions.

In the last year, GCF has been actively investigating how certification can play a role in overcoming issues that relate to device quality and performance in the high-growth Indian market.

The final workshop in a series of four was held in New Delhi prior to SG#70. Bringing together stakeholders from across the Indian mobile industry, the workshop included presentations from Bharti Airtel and TEC as well as GCF.

There was consensus that GCF should

continue to work with government agencies, local operators and manufacturers to ensure that GCF certification reflects requirements relevant to India while supporting the development of the indigenous test industry. Further meetings with key Indian stakeholders and additional workshops are planned over the next 18 months to monitor progress in this important mobile market.

GCF is currently planning a Middle East workshop on 4 July and another in China on 7 September. Check GCF's [event page](#) for further information.

GCF will also be represented at the events below to engage with stakeholders in China, Latin America and North America:

June 28 - 1 July	MWC Shanghai , Shanghai, China
July 5 - 6	America Digital - Congreso Latinoamericano Tecnología y Negocios , Santiago de Chile, Chile
September 12-14	MWC Americas , San Francisco, USA

To arrange a meeting with GCF around any of these events and workshops, please contact gcf@globalcertificationforum.org.

Membership Matters

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

Associate Operators

- Bharti Airtel, India

Manufacturers

- Gemtek, Taiwan
- MLS Multimedia, Greece
- Spreadtrum, China

Associate Manufacturers

- Alpine, Japan
- Crosscall, France
- Logic Supply, USA
- Razer Inc, USA
- Verve Connect, UK

Observers

- Paragon Testing, UK
- Stelia, France
- WE Certification, Finland

GCF currently has 299 members:

▪ Operators	128
▪ Manufacturers	74
▪ Associate Manufacturers	26
▪ Observers	70
▪ Client Vendors	1

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