Introduction of Typical global certification system
---GCF/PTCRB/CTIA

CTTL-Terminals
contents

• GCF certification
  • GCF background
  • GCF organization
  • GCF member
  • GCF certificate

• PTCRB certification
  • PTCRB background
  • PTCRB organization
  • PTCRB certificate—different with GCF

• CTIA certification

• How to get the market access in EU and USA
GCF certification
Background to GCF

• Found in 1999 http://www.globalcertificationforum.org
  ✓1999/08/24
  ✓GSM Association & terminal (mobile) manufactures
  ✓London Agreement

• Precursor:
  ✓After cancel the Mandatory conformance test(FTA), insure the GSM terminal quality by telecom operators & manufactures

• Operator requirement:
  ✓vodafone, Orange, etc

• Voluntary certification
organization structure for GCF

- Borad
- Steering Group
  - Organization Procedures
  - Operating Budget
  - Application Procedures
  - Principle Documents
  - Abbreviations & Definitions
- Agreement Groups
  - CAG (Combined AG): Develop & Maintain GERAN/UMTS/LTE/AE conformance & Interoperability requirement
  - FTAG (Field Trial AG) Develop & Maintain filel trial requirment
  - PAG (Performance AG) Develop & Maintain performance requirment
  - AAG (Accessory AG) Develop & MaintainAccessory requirment
organization structure for GCF
organization structure for GCF
--GCF Board

• Board make by:
  ➢ Steering Group president & Vice president & GCF OM
  ➢ Mostly 6 operators
  ➢ Mostly 6 manufactures

• Board meeting: 4 times/year; 1+ day/time

• Board vote:
  ➢ vote through by more than 3 operators & 3 manufactures
  ➢ Notice earlier 48 hours
  ➢ Vote on behalf of the company
organization structure for GCF -- Steering Group

• SG meeting: 2-5times/year
• Special meeting:
  call a meeting by president & Vice president

• approval by all the members
• Or vote through by more than 50% operators & 50% manufactures
organization structure for GCF -- Agreement Group

- AG meeting: 4 times/year
- Develop & Maintain:
  - conformance & Interoperability requirement
  - Filel trial requirement
  - performance requirement
  - Accessory requirement
GCF member

• Full member
  ➢ Telecom operator & terminal (mobile) manufactures
  ➢ Vote right

• Observer
  ➢ test lab & Instrument manufacture...

• All the member can join the SG&AG meeting
GCF certificate -- technical requirement

Conformance test
- 2G:3GPP TS51.010
- 3G:3GPP 34.12x
- LTE:3GPP 36.52X
- ETSI/OMA

Interoperability test & Field Trial
- End to End testing
- According to the requirement of GCF FTQ
- Test against 5 different infrastructure combinations

According to Pics file
- GCF CC document

Self declaration
- GCF PC & GCF AC (not mandatory)
- GCF PC: Audio/Data throughput/battery life/OTA
- GCF AC: EMC/safety/Electrical SIM

OTA test
- GSM
- WCDMA
- Do not test LTE
PTCRRB certification
Background to PTCRB

- PCS Type Certification Review Board
- Found in 1997 by USA operator [http://www.PTCRB.org](http://www.PTCRB.org)
  - 1997/03
  - Telecom operator & terminal (mobile) manufactures & test lab
- Voluntary certification & Quasi mandatory
  - Not the government requirement
  - Certification forum requirement
- PTCRB Certification & standard file:
  - 3GPP/OMA/ETSI standards
  - PTCRB operator requirement
organization structure for PTCRB

• PVG (PCS Validation Group)
  • Define the test list for every terminal, Insure the test list consistency
  • Constitute the PTCRB requirment
  • IPR for the PTCRB requirment
• Authorize the PTCRB test lab—different with GCF
• Certified & Management Department: CTIA
Manufacture submit form the PTCRB websit
Test lab accept from the PTCRB websit

Initial/Variant/ECO application

From technical requiement

More test: 3G RF RSE/CTIA OTA/WiFi
OTA/TTY/AT command

More GCF test band: GSM: 900MHz, 1800MHz
WCDMA: Band I
...

PTCRB CERTIFICATE
-- DIFFERENT WITH GCF
GCF in EU

Form:
According to R&TTE directive;
GSM Association & manufactures
Test LAB & Instrument manufacture
can not vote, can join by observer

Function:
Constitute the test standard & test
cases according to 3GPP
WHEN & HOW Start the conformance test

Work:
Validate test cases & test platform
• Define the test list for every terminal,
  Insure the test list consistency
• Insure each GCF certification terminals can
  pass the test list
• Technology evolution
• Only test in the third party

Validate the conformance test & Field test & AE test
in 3 party test lab
• Self declaration by manufacture
• random inspection by GCF

Global Certification Forum

• Not validate test lab
• Only ISO 17025 for test lab

GCF is not the Mandatory requirements;
Accept by most Country and operator;
HIGH ACCEPTANCE
PTCRB in USA

**Form:**
Same to GCF, telecom operators & manufactures
Separate certificate for test lab in PTCRB

**Work 工作:**
1. Constitute the PTCRB requirement
2. Constitute the test lab standard
3. Vote the standard by PTCRB meeting
4. Release the resolution

**Function:**
Constitute the test standard & test cases according to 3GPP
WHEN & HOW Start the conformance test certificate for test lab

- Be the member for the PTCRB
- Take test in the PTCRB acceptable LAB
- Submit the test report on PTCRB website
- Validate by PTCRB

**PTCRB is the Mandatory requirements by Country and operator;**
**Certification form schemes & Mandatory & NOT the government requirement**
GCF/PTCRB test standard

common standard

- GSM conformance
  - 3GPP TS 51.010-1 – RF, protocol, RSE, audio, SIM, AGPS, GAN
  - 3GPP TS 51.010-4 - STK

- WCDMA conformance
  - 3GPP TS34.121-1 – RF, RRM
  - 3GPP TS 34.123-1 – protocol
  - 3GPP TS 26.132 – audio
  - 34.171 – AGPS RF
  - 3GPP TS 31.121 – USIM
  - 3GPP TS 31.124 – USIM AE
  - ETSI TS 102 230 – UICC
GCF/PTCRB test standard

• LTE conformance
  - 3GPP TS36.521-1 – RF,
  - 3GPP TS36.521-3 - RRM
  - 3GPP TS 36.523-1 – Protocol
  - 3GPP TS 31.121 – USIM/UICC

• AE conformance
  - OMA-ETS-MMS-1_3
  - PoC
  - IMTC-3G 324M VT
  - OMA-ETS-DM-V1_2
  - OMA-ETS-SUPL-V1_0
GCF/PTCRB test standard

GCF only
- IEC 62002 - DVB-H
- 3GPP 34.114 - OTA
- TS.11 – Field Trial

PTCRB only
- CTIA_TestPlanforMobileStationOTAPerformanceRevision_V3.1 – OTA
- CWG_RF_Test_Plan_1.3 – WiFi OTA
- AT Command Test Specification v2010-08-11
- PTCRB_Bearer_Agnostic_TTY_Test_Specification_v1.0
- 3GPP TS 34.124 3G RSE
GCF/PTCRB test platform

conformance test system

1. RS TS8950GW
2. RS TS8950G
3. RS CRTUG
4. RS CRTUW
5. RS TS8980
6. Anritsu ME7873F
7. Anritsu ME7873L
8. Anite SAT8
9. Anite SAT UE
10. Anite9000
11. Comprion IT3
12. CMU200+UPL16/HATS
13. AT4 MINT
14. Setcom S-CAT5020
15. Agilent GS8800
16. SIMfony
CTIA Certification
CTIA – The Wireless Association

• Non-profit membership organization representing wireless communications industry
• Based in Washington, DC
• Advocates on behalf of its members and coordinates industry initiatives
• Provides industry certification program for wireless devices
Industry Certification Role

• Provides assurance that device meets industry-defined requirements
  • Working groups composed of industry representatives define requirements
Verifies wireless device conformance

- Global technical specifications such as 3GPP and 3GPP2
- CTIA specifications:
  - CTIA Test Plan for Mobile Device Over-the-Air Performance
  - CTIA/Wi-Fi Alliance Test Plan for RF Performance Evaluation of Wi-Fi Mobile Converged Devices
  - CTIA Certification Requirements for Battery System Compliance to IEEE 1625/1725
  - CTIA Bluetooth Compatibility Test Plan
  - CTIA LTE Interoperability Test Plan
  - CTIA Hearing Aid Compatibility Test Plan
  - CTIA Speech Performance Test Plan
Certification Process
CTIA Authorized Test Lab Requirements

- ISO/IEC 17025 accreditation (General Requirements for the Competence of Testing and Calibration Laboratories)

- Assessment by CTIA-appointed Subject Matter Expert

- Sign CATL License & Service Agreement

- Follow Policies and Procedures for CTIA Authorized Testing Laboratories Document
CTIA Authorized Test Labs

32 in North America
8 in Europe
56 in Asia
Wireless Device Certification

Thanks to CTIA member companies that constantly innovate and develop the fastest, hottest and “coolest” mobile technology, the U.S. wireless industry is the world's leader.

Yet many consumers don’t realize that the U.S. wireless industry, through CTIA, takes extensive steps to ensure its products (e.g., phones, tablets, batteries, etc.) are reliable before they are commercially available. Even though the CTIA certification process is voluntary, many providers seek the independent verification to ensure their devices are proven.

- CTIA Authorized Test Labs
- Certification Test Plans
- Supplier Best Practices
How to get the market access in EU and USA
How to get the market access

- FCC (USA)
- CE R&TTE (Europe)
- other countries

- Regulatory requirements
- Requirements of certification schemes

- GCF
- PTCRB
- CCF
- CTIA
- NVTIOT

- Bluetooth SIG
- Wi-Fi
- USB-IF …

- Operators & end-users
- Customization
- User Experience
- NSIOT
- FTIOT

- Operator requirement
About CTTL-Terminals

- 3rd party service provider
- World wide customers
- Over 500 engineers in Beijing

- GSM/WCDMA/LTE/CDMA/TD-SCDMA test network.
- Test simulators

- CE/FCC/IC/CTA
- GCF/PTCRB
- WiFi/BT/NFC/USB...

Test Environment Provider

One-stop Test service Provider

One-stop Approval Provider

Global Standard Develop

- One-stop TA test
- Operator Acceptance
- IOT service
- User Experience test

3GPP, 3GPP2
- ITU, OMA
- IEC, IEEE, CTIA

3rd party service provider
World wide customers
Over 500 engineers in Beijing

Beijing
Shanghai
Shenzhen
Exam questions:

1. The full name of “GCF” and “PTCRB”? 
2. Which certification forum need audit test lab, GCF or PTCRB? 
3. CTIA certification is an Operator requirement, true or false?
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