China’s Certification System for ICT Equipment

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Course Objectives

1. Introduce China’s certification system for ICT equipment
2. Provide reference for implementation of ITU C&I project
Agenda

1. Overview of China’s ICT Product Regulation Pattern
2. Introduction of Product Certification System in China
3. Effects of Product Certification System
Several Concepts

**Conformity assessment**, also known as compliance assessment, is any activity to determine, directly or indirectly, that a process, product, or service meets relevant technical standards and fulfills relevant requirements [1].

**Certification** is defined as a third-party attestation related to products, processes, systems or persons.[2]

**Accreditation** is defined as a third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks. [2]

### Overview of ICT Product Regulation Patterns

<table>
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<th>Regulation Pattern</th>
<th>Regulation Scope</th>
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<tr>
<td>China Compulsory Certification (CCC)</td>
<td>Telecommunications terminal equipment, Audio-video equipment, Information technology equipment</td>
</tr>
<tr>
<td>Voluntary Product Certification (e.g. TLC, CQC)</td>
<td>Cable, optical cable, power supply, air conditioner, storage battery, distributing frame, etc.</td>
</tr>
<tr>
<td>Network Access License (NAL)</td>
<td>Telecommunications terminal equipment, wireless communication equipment and equipment used in network interconnection</td>
</tr>
<tr>
<td>China Type Approval (CTA)</td>
<td>Radio Equipment</td>
</tr>
<tr>
<td>Others: Voluntary Product Certification</td>
<td></td>
</tr>
<tr>
<td>Others: China RoHS; China Environmental Labeling; Network security; Green Labeling, etc.</td>
<td></td>
</tr>
</tbody>
</table>
Focus of Different Regulation Patterns

**Network Access License (NAL)**

- InfoSec and function
- RF receiver performance
- Antenna Performance
- RE & CE
- Authentication Encryption Compatibility
- Call Link

- IWF between card and terminal
- RXD performance
- CS, RF Common Mode
- RS, Radiated Susceptibility
- Multiple System Compatibility
- Network Adaptability

- Information Security Protocol and Interconnection Protocol
- RF Performance
- ESD
- Electromagnetic radiation

- China Type Approval
- RF Emission Performance
- ESD
- Electromagnetic radiation

**China Compulsory Certification**

- EMC/Safety

**EMC/Safety**

**Interconnection**

- Frequency Spectrum
- Interconnection

- China Compulsory Certification
- Voluntary Product Certification
- Function
- Performance
- Other special aspects
# Focus of Different Regulation Patterns

<table>
<thead>
<tr>
<th>Network Access License (NAL)</th>
<th>Interconnection</th>
</tr>
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<tbody>
<tr>
<td>InfoSec and function</td>
<td>Call Link</td>
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<tr>
<td>RF receiver performance</td>
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<tr>
<td>Antenna Performance</td>
<td>Multiple System Compatibility</td>
</tr>
<tr>
<td>RE &amp; CE</td>
<td>Network Adaptability</td>
</tr>
<tr>
<td>IWF between card and terminal</td>
<td>RXD performance</td>
</tr>
<tr>
<td>CS, RF Common Mode RS, Radiated Susceptibility</td>
<td></td>
</tr>
<tr>
<td>Information Security Protocol and Interconnection Protocol</td>
<td>ESD</td>
</tr>
<tr>
<td>RF Performance</td>
<td>SAR</td>
</tr>
<tr>
<td>RF Emission Performance</td>
<td>NAL Test</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency Spectrum</th>
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</thead>
<tbody>
<tr>
<td>China Type Approval</td>
</tr>
<tr>
<td>RF Emission Performance</td>
</tr>
<tr>
<td>Information Security</td>
</tr>
<tr>
<td>EMC/Safety</td>
</tr>
</tbody>
</table>

- **China Compulsory Certification**
- **EMC/Safety**
- **Voluntary Product Certification**
Agenda

1. Overview of China’s ICT Product Regulation Pattern
2. Introduction of Product Certification System in China
3. Effects of Product Certification System
History of Product Certification System in China

Reasons for Implementing Product Certification System:
- Carry out commitment of accession of China to WTO;
- Improve market economy and trade, so as to adapt to market economy requirements;
- Regularize interior management, and optimize China’s product certification system;
- Similar to product certification systems in other countries, provide convenience for mutual recognition;

Regulations on Certification and Accreditation of the P.R. China was promulgated in 2003,
Statistics of Product Certification

Number of CBs in the past five years

<table>
<thead>
<tr>
<th>Year</th>
<th>CB</th>
<th>Product CB</th>
<th>Voluntary product CB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>174</td>
<td>108</td>
<td>83</td>
</tr>
<tr>
<td>2013</td>
<td>174</td>
<td>113</td>
<td>86</td>
</tr>
<tr>
<td>2014</td>
<td>184</td>
<td>119</td>
<td>91</td>
</tr>
<tr>
<td>2015</td>
<td>221</td>
<td>135</td>
<td>106</td>
</tr>
<tr>
<td>2016</td>
<td>300</td>
<td>159</td>
<td>119</td>
</tr>
</tbody>
</table>

Distribution of product certificates of different areas

- **CCC**: 532068
- **Voluntary certification for industrial products**: 365350
- **Voluntary certification for agricultural products and food**: 96990

Data Source: CNCA
International Cooperation

- Set up Chinese certification and accreditation system and implement effectively by actively adopting international standards and guides (ISO/IEC standards and guides).
- Actively participate in the activities of over 20 international/regional certification and accreditation organizations to promote international certification and accreditation development.
- China has reached agreements/ MOUs with over 40 competent government authorities or conformity assessment bodies from more than 20 countries/regions.
Regulatory Framework of Compulsory Product Certification

General Administration of Quality Supervision, Inspection and Quarantine

AQSIQ

Associations attached to AQSIQ

Direct affiliates of AQSIQ

Supervises

Certification and Accreditation Administration of China

CNCA

Supervises

Standardization Administration of China

SAC

Approved

Authorized

Approved

Designated Inspection Bodies and Labs

Designated Certification Bodies

Designated Certification Mark Management and Issuance Center

China National Accreditation Service for Conformity Assessment

CNAS

Provincial bureaus Of Quality and Technical Supervision

CIQs directly under AQSIQ
Regulatory Framework of Voluntary Product Certification

General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)

- Direct affiliates of AQSIQ
- Associations attached to AQSIQ

- Supervises
  - Certification and Accreditation Administration of China (CNCA)
  - Standardization Administration of China (SAC)

CNCA

- Supervises
  - China National Accreditation Service for Conformity Assessment (CNAS)

CNAS

- Authorizes
  - Inspection Bodies and Labs

Inspection Bodies and Labs

- Subcontract
  - Product Certification Bodies (CBs)
Normative Documents are mainly issued by CNCA and CNAS. These documents cover nearly all the implementation procedures.

National stipulations; national technical rules; national standards.

Detailed rules for the implementation of CCC; Implementation rule of voluntary product certification; Program files; Instructions and operation guide; Regulations of CBs; etc.

The laws are approved and announced by National People’s Congress; the administrative regulations are approved and announced by the State Council; the rules are approved and announced by the ministries and commissions under the State Council.
Documentation System

General:
- Standardization Law of P. R. China
  Including the classification, nature and implementation methods of standards.
- Product Quality Law of P. R. China
  Certification system, supervision system; responsibility and penalties of CBs, local organizations, producers and distributors.
- Law of P. R. China on Import and Export Commodity Inspection
  Import safety quality licensing system.
- Regulations for The Implementation of the Standardization Law of P. R. China
- Regulations of the P.R. China on Certification and Accreditation etc.

For CCC:
- Administrative Measures on Entry Verification of Civil Commodities subject to Import Licensing System, AQSIQ Decree (2001) No.6 etc.
Documentation System

CNCA: (mainly for CCC)
- Regulations for Compulsory Product Certification Mark, Notice No.1 (2001) of CNCA
- Catalogue description and definition of Compulsory Product Certification, Notice No.45 (2014) of CNCA
- Regulations on Designation of Certification Bodies, Inspection Bodies and Testing Laboratories for Compulsory Product Certification
- Implementation Rules for Compulsory Product Certification
- etc.

CNAS:
- Accreditation criteria for CB/Inspection Bodies and Labs;
- Rules for the Accreditation of CB/Inspection Bodies and Labs;
- Guidelines for the Accreditation of CB/Inspection Bodies and Labs;
- Illustration for the Accreditation of CB/Inspection Bodies and Labs.
Documentation System

For CCC:
- mandatory requirements set in national mandatory standards or national technical rules;

For Voluntary Product Certification
- National standard;
- Industry standard;
- Technical specification for product certification;
- International standard;
- Group standard.
Documentation System

General:
- Program files set by CBs for product certification;
- Public document;
- Forms;
- Regulations of CBs; etc.

For CCC:
- Detailed rules for the implementation of CCC based on normative documents issued by CNCA;

For Voluntary Product Certification:
- Implementation rules issued by CBs;
- Certification scheme; etc.
Key Factors for Implementation
Key Factors for Implementation

The first catalogue of products subject to CCC (2001)

19 categories, 132 items

Catalogue description and definition (up to 2014.12)

20 categories, 158 items

Total 20 categories, 158 items:
- Cover more than 10 sectors related to human life and health that may affect national economy
- ICT area:
  - Telecommunications terminal equipment, Audio-video equipment, Information technology equipment

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable</td>
<td>78</td>
</tr>
<tr>
<td>Distribution</td>
<td>44</td>
</tr>
<tr>
<td>Power Supply</td>
<td>30</td>
</tr>
<tr>
<td>Battery</td>
<td>8</td>
</tr>
<tr>
<td>Air conditioner</td>
<td>6</td>
</tr>
<tr>
<td>Surge Protection</td>
<td>5</td>
</tr>
<tr>
<td>Wireless/Optical Module/RFID, etc.</td>
<td>27</td>
</tr>
</tbody>
</table>
## Guidelines for Product Certification Schemes

### Conformity assessment functions and activities within product certification schemes

<table>
<thead>
<tr>
<th>I</th>
<th>Selection, including planning and preparation activities, specification requirements</th>
<th>1a</th>
<th>1b</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Determination of characteristics, as applicable, by: testing, inspection, design appraisal, assessment of services or process, other determination activities, e.g. verification</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>III</td>
<td>Review</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>IV</td>
<td>Decision on certification</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### Attestation, licensing

- a) Issuing a certificate of conformity or other statement of conformity | X | X | X | X | X | X | X | X |
- b) Granting the right to use certificates or other statements of conformity | X | X | X | X | X | X |
- c) Issuing a certificate of conformity for a batch of products | X |
- d) Granting the right to use marks of conformity is based on surveillance or certification of a batch | X | X | X | X | X |

### Surveillance, as applicable, by:

- a) Testing or inspection of samples from the open market | X | X | X |
- b) Testing inspection of samples from the factory | X | X | X |
- c) Assessment of the production, the delivery of the service or the operation of the process | X | X | X | X |
- d) Management system audits combined with random tests or inspections | X | X |
Key Factors for Implementation

For Compulsory Product Certification:
- Based on implementation rule “classification management of producers, selection and determination of Certification Mode”
- Certification Elements mainly include: Type test; Testing or inspection of samples taken from the factories; Assessment of manufacturers’ quality assurance system and consistency of products; Testing or inspection of samples taken from the market; Follow-up inspection on certified products; Design verification
- Selection of certification mode: Determine the Basic Certification Mode based on risk grade, operability and economy; CBs implement classified management for manufacturing enterprises; CBs choose the suitable certification mode based on the classification through adding one or more Certification Elements.
- e.g. Type Test + Follow-up inspection; or Initial factory inspection + Type Test + Follow-up inspection (Surveillance)

For Voluntary product certification, mainly (it depends on CBs):
- Type Test + Initial factory inspection + Follow-up inspection
Key Factors for Implementation

Scope
- Compulsory Product Certification
  - National mandatory standards
  - National technical rules

Mode
- Voluntary Product Certification
  - National standard
  - Industry standard
  - International standard
  - Technical specification
  - Group standard

Process
- Basis

Voluntary Product Certification
- National standard
- Industry standard
- International standard
- Technical specification
- Group standard
Key Factors for Implementation

- Application and Acceptance
- Sampling and Testing
- Initial Factory Inspection
- Evaluation and Approval
- Follow-up Inspection

Based on classification of manufacturing enterprises

Scope
Mode
Basis

Compulsory Product Certification
Key Factors for Implementation

- Application and Acceptance
  - Arrange Inspect Task
    - Initial Factory Inspection
    - Sampling and Testing
  - Evaluation and Approval
  - Follow-up Inspection

Scope
Mode
Basis

Voluntary Product Certification
Agenda

1. Overview of China’s ICT Product Regulation Pattern
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Initiatives of Product Certification

- An internationally adopted measure to regulate economy and promote development
- A reliable method of organizations to enhance management level, guarantee product quality and improve competitiveness
- A strategic choice of the nation to guarantee product safety, regulate market, guide consumers, protect environment, protect human life and health, and to promote international trade.
- China implements Compulsory Product Certification in accordance with relevant laws and regulations for the purpose of protection of state security, prevention of deceptive practices, and protection of human life or safety, animal or plant life or health, and the environment.
- China promotes voluntary certification to guide consumers, improve enterprises’ competitiveness, their products’ performance and their capability to maintain compliance.
Effects and Advantages

- **Certification results are widely recognized and adopted by various social sectors**
  - Many laws and regulations have stipulations related to certification and accreditation.
  - The government agencies are adopting more and more certification and results in their efforts of transforming government functions.
  - Products passing energy-saving and environmental protection certification are given priority in government procurement.
  - More enterprises and consumers purchase goods according to conformity assessment results or quality, safety marks.
  - Compulsory product certification could protect safety of human being as well as national security.
Effects and Advantages

- **Product, service quality and management level have been enhanced through certification**
  - The average rate of product quality above standard in certified enterprises is more than 92%, and in un-certified ones is less than 80%.
  - More than 95% of surveyed enterprises believe that certification could improve the customer satisfaction and enhance product quality, while nearly 90% think certification could enhance the brand.

- **To certain extent, certification have been promoting the national economic and social development.**
  - According to the statistics, certification and accreditation have contributed to Chinese economic growth with certain pulling rate.
TL Certification Center (TLC)

TLC is a department under CAICT, and it’s a certification body with product certification and management system certification ability. It mainly focus on quality management and promotion of ICT industry, and promote harmonious development of government, communication operators, manufactures, third-party inspection bodies and consumers.

<table>
<thead>
<tr>
<th>Schemes</th>
<th>Standards/Rules for Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRODUCT</strong></td>
<td>CCC: Telecommunications terminal equipment, Audio-video equipment, Information technology equipment</td>
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<td>Voluntary product certification: Cable, fiber, optical cable, power supply, air conditioner, storage battery, distributing frame/box, connector antenna, etc.</td>
<td></td>
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<tr>
<td>QMS</td>
<td>GB/T 19001 / ISO 9001</td>
</tr>
<tr>
<td>EMS</td>
<td>GB/T 24001 / ISO 14001</td>
</tr>
<tr>
<td>OHSMS</td>
<td>GB/T 28001</td>
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</tbody>
</table>
Abbreviation Index

**CB**: Certification Body  
**CCC**: China Compulsory Certification  
**CCEE**: China Commission for Conformity Certification of Electrical Equipment  
**CCIB**: China Import and Export Commodity Inspection Bureau  
**CIQ**: China Inspection and Quarantine  
**CNCA**: Certification and Accreditation Administration of the People’s Republic of China  
**CNAS**: China National Accreditation Service for Conformity Assessment  
**CPC**: Compulsory Product Certification  
**CS**: Conducted Susceptibility  
**CTA**: China Type Approval  
**C&I**: Conformity and Interoperability  
**DCB**: Designated Certification Body  
**EMC**: Electro Magnetic Compatibility
Abbreviation Index

EMS: Environmental management system
ESD: Electro-Static Discharge
ICT: Information and Communication Technology
IEC: International Electro-technical Commission
IECEE: The IEC System for Conformity Testing and Certification of Electrical Equipment
ISO: International Organization for Standards
IWF: Inter-Working Function
NAL: Network Access License
OHSMS: Occupational Health and Safety Management System
QMS: Quality Management System
RE & CE: Radiated Emission & Conducted Emission
RF: Radio Frequency
Abbreviation Index

RS: Radiated Susceptibility
RXD: Receive Data
SAC: Standardization Administration of China
SAR: Specific Absorption Ratio
WTO: World Trade Organization
Trainer information

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