

China: The Final Frontier in Telecom Approvals

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What once was a formidable maze of culture, laws, and overlapping regulations is now a truly open market with clear pathways to marketing electronic products.

Introduction

China has a culture and a market that for most western companies has long been shrouded in mystery and political intrigue. However, as one of the largest growing information technology markets in the world, China now opens a critical window of opportunity for companies to enter this market. With a population of over 1.3 billion people, China offers a potentially lucrative market for foreign goods and services. Being a relatively new country to IT technology, China represents a huge potential market for manufacturers to sell their products. This is particularly true in the area of telecommunications. Just five years ago, most places in China had five-digit telephone numbers. Today, many cities have eight-digit numbers and many of China's 250 million city dwellers possess a pager, a cellular phone or both. The Chinese government has undertaken a massive effort to revise its laws and regulations in a manner consistent with WTO (World Trade Organization) rules. There are still substantial barriers in place that have yet to be dismantled. Import barriers, an opaque and inconsistent legal system, and limitations on market access combine to make it difficult for foreign firms to compete in China. While China's trade liberalization efforts represent a step forward, there are also a number of new regulations introduced, such as the new China Compulsory Certification (CCC) Mark introduced in May 2002.

If you are contemplating obtaining approvals for electrical, electronics products, whether for telecommunications, computing, radio, electronics, household appliances, then you will face some distinctly Chinese obstacles, for which you need to be prepared. There are several barriers to imported

products; distance, language, unfamiliar culture and unsophisticated commercial market conditions can sometime make this a difficult and expensive procedure. A formidable maze of culture, laws and regulations confronts any company embarking on this venture.

This article is to summarize four major China approvals currently implemented, i.e. China Compulsory Certification (CCC) Mark, Network Access License (NAL), Radio Type Approval, and Security Product's Sales Permit. For each type of approval, the practical help is provided and the most current information of the process will be presented.

China Compulsory Certification (CCC)

From May 1, 2002, China implemented CCC Mark for one-year transition period. After April 30, 2003, CCC will be fully enforced.

The authority governing CCC is called China Certification and Accreditation Administration (CNCA). The new CCC Mark replaces two old systems, i.e. CCIB (for foreign products) and CCEE (for domestic products). CNCA published the first catalogue of 19 types of products covering total of 132 categories. All products in the CCC product catalogue, no matter manufactured by a foreign company or a Chinese company, must comply with the same CCC Implementation Rules to enter into China market.

In fact CNCA itself, as CCC regulator, doesn't issue CCC certificate. Under CNCA, there are three organizations, i.e. CNAB – China National Accreditation Board for Certifiers, CNAL – China Accreditation Board for Laboratories, and CNAT –

China National Auditor and Training Accreditation Board. CNAB initially accredited two Certification Bodies, so far CNAB has accredited 9 Certification Bodies all in China. Each of them is accredited and authorized to certify particular types of products and issue CCC Mark. CCC Certification Body is not allowed to perform CCC testing. All CCC Testing must be performed at CNAL accredited test laboratories. CNAL accredited 68 laboratories at the time CCC was announced. As of today I am writing this article, CNAL has accredited 882 testing laboratories in China, each of which is accredited for CCC testing on certain types of products. Because CNCA has not achieved any mutual agreement with any other accreditation body, currently all CCC testing must be performed at CNCA accredited laboratories in China. There is only one exception, on November 20, 2002, CNCA China and SPRING Singapore (formerly Singapore Productivity and Standards Board) signed the Memorandum of Understanding (MoU) that allows for those products under CCC categories can be certified in either country to enter into the other country without being certified again. This is the first such MoU signed by CNCA China since CCC was implemented in May 2002.

The CCC Mark requires for the following steps to accomplish the whole process.

- Application made to one of CNCA accredited Certification Bodies
- Sample Testing at one of CNCA accredited test laboratories normally assigned by the Certification Body the application was submitted. Typically the manufacturer does not have the choice to choose which lab to perform the CCC testing unless a strong argument is made to justify why you would like to choose another lab other than the assigned one.
- Factory Inspection performed by Engineers assigned by the Certification Body.
- Verification of the remittance of the CCC certification fees including application, testing, factory inspection.
- Grant CCC Certification by the Certification Body.
- Purchase CCC Mark of product label (CCC Stickers) or apply for the permission of printing own CCC label.

All application must be made in the standard form or electronically with the Declaration of Conformity to Chinese Standards. The application must be submitted in Chinese.

Sample Testing includes Safety Testing and EMC Testing. For Safety Testing, China, as a member of CB Scheme, accepts CB Test Report with China

deviations. If the CB report doesn't cover China deviations, additional Safety testing will be performed in accordance with Chinese standards if China deviation is applicable. For EMC Testing, CNCA accredited lab will be assigned by the Certification Body and perform EMC testing as per Chinese standards. All Chinese standards are written in Chinese but indicated as "IDT", "EQV", or "NEQ" to similar international IEC standards. "IDT" means two standards are exactly the same, "EQV" means two standards are technically equivalent but may (or may not) have some minor deviations, "NEQ" means major technical deviations exist, for reference only.

If the factory, which manufactures the products for CCC, has never been inspected under either CCIB or CCEE systems and the first time to apply for CCC Mark on this type of products, the factory inspection is mandatory before CCC Mark is granted. The factory inspection typically runs two days by two Engineers assigned by the Certification Body, one on technical side, the other on quality assurance. There are ten aspects to be inspected, including

- Responsibilities and Resources
- Documents and Records
- Purchasing and Receiving Inspection
- Process Control and Inspection
- Routine Tests and Verification Tests
- Inspection and Test Equipment
- Control of Non-conforming Products
- Internal Audit
- Changes to Certified Product
- Packing, Handling and Storage.

Details of factory inspection criteria are defined in the official publication of CCC Implementation Rules for each category of products.

The application for CCC Mark includes the following documents:

- The CCC Application Form
- The Application for Factory Inspection or Factory Inspection Report if the factory has been inspected for the same type of products
- Business licenses of the manufacturer, factories, and local distributor (if there is any).
- Brief introduction of the manufacturer and factories (if more than one factory).
- Product description, user manual, etc.
- Chinese labeling
- List of critical components
- Manufacturer's Declaration of Conformity
- Electrical diagrams, block diagrams, circuit diagrams, and assembly diagrams
- CB Report and CB Certificate (if there is any)
- Power of Attorney (if applicable)

Except business licenses and CB report/certificate, all documents must be submitted in Chinese. The application package is considered as legal document and must be signed by legal authority of the company. It can be very tedious to compile the documents and create the application package although most of the information can be found in the company and product literatures.

The CCC Certification fees are paid directly to the Certification Body application was made to either by Chinese RMB or equivalent amount of US dollars. The payment includes all CCC fees including application, registration, testing, factory inspection, etc. There is no additional fees to be paid to the assigned test lab which performs the testing. The test lab will collect testing fees from the Certification Body afterwards.

The cost and timescale for CCC Mark varies on several factors:

- The type of products
- The category of products
- With or without CB report
- With or without China deviations in CB
- With or without factory inspection

Typical cost for CCC Mark runs anywhere from US\$1,500 to US\$20,000. Typical time frame to get CCC from application is submitted to the CCC Mark is granted runs anywhere from 3 weeks to 6 months. The test time also depends on the schedule of the assigned test lab. This is worth mentioned here, that all CNCA accredited labs are currently somehow connected with Chinese government to some extents. They basically have little or no competitions and for many of them profitability is not within their mission. In fact, CNCA has regulated all fees and Certification Body will charge the fees on behalf of the test lab. Consequently, one should not expect to work with them in the way that you work with a typical A2LA or NVLAP accredited independent test lab in the United States.

Network Access License (NAL)

Many companies will view approvals purely as an expensive hindrance to commerce, but the reasons behind them can be justified. In reality, they serve to prevent the supply of potentially dangerous and poor-quality products into the marketplace. It is necessary to ensure that telecommunications products operate correctly when connected to the national infrastructure and do not constitute a risk to the safe and proper operation of the networks to which they are connected. China is no exception to this rule, the importation and supply of unapproved or 'grey' products can lead to prosecution and forfeiture of equipment by authorities.

The MII China – the Ministry of Information Industry stipulates the telecom approval regulations and the Telecommunications Administration Bureau under the MII takes charge of telecom products approvals granted in the form of Network Access License (NAL). Each type of approved product will be issued an NAI – Network Access Identifier with the certification number.

On June 25, 2001, MII announced the first three categories of telecom equipment, total of 28 types of products. All regulated products must be MII approved before entering China market. MII also assigned 10 laboratories to perform NAL testing. Each lab focuses on certain types of products. Please note these labs may not be CNCA accredited, and currently MII and CNCA are still under different certification systems.

The applicant for NAL must be a legal entity located in the main-land China. The application package can be submitted to one of two MII Certification Centers both located in Beijing. The process of NAL application is shown as Chart 1: NAL Application Process.

There are typically four types of applications, i.e. Renewal, Regular Equipment, High-end Equipment, Equipment Modification. The whole process varies on different type of applications. Although Chart 1 shows the whole process and covers all types of applications, this article will introduce the typical application process. For certain types of applications, such as High-end equipment, e.g. core routers, data switching, ATM, etc., the process can be extremely complicated and manufacturers shall seek consultation from professional approval agents before proceed.

The major difference between MII approval and European or FCC approvals is the Quality Assurance is included in the approval process. The manufacturer shall have satisfactory Quality System in place. If the manufacturer is not ISO 9000 certified, the MII approval will audit manufacturer's Quality System. From MII point of view, the Quality Audit and Technical Audit are equally important, refer to Chart 1 for details of the whole process of the MII approval.

The following documents must be submitted for NAL testing and MII approval. All documents shall be submitted in Chinese.

- Application Form
- Business License of Applicant
- The Power of Attorney
- Manufacturer/Factory's Quality System

- Brief description of the manufacturer and local representative
- Description of the equipment, functionality, performance, specifications, etc.
- Detail post-sales support program and commitment
- User Manual, Installation Instructions, etc.
- The interior and exterior photos of the equipment (minimum 5 photos)
- The block diagrams, circuit diagrams, and assembly of the equipment

Typically the testing shall be performed by one of the 10 MII assigned labs in China. The testing also can be performed in the lab or customer premises under special arrangement but must be performed and reported by MII assigned lab. MII doesn't accept any reports other than from MII assigned labs. Most of Chinese standards are similar to ITU standards but in Chinese. It is important to fully discuss with test lab as regarding testing scopes, number of testing samples, test specifications, procedures, and cost of testing. The cost of testing is determined and charged by the test lab. The amount and payment method of testing fees is negotiable. It is highly recommend employ an approval expertise to discuss all these issues with testing lab on behalf of the manufacturers. MII approval center will charge all other fees, such as cost of expertise panel appraisal and certification fees, which varies on the type of products.

The whole process may take several months to complete but for some straightforward cases it may take as little as 3 weeks.

All equipment under MII/NAL regulation must be affixed MII approval "sticker" – the Network Access Identifier (NAI). The NAI is made by MII Certification Center with MII Certification number. The cost for NAI "sticker" varies on the types of products as well, but typically from 0.50 RMB (USD0.06) for terminal equipment to 4.00 RMB (USD0.50) for routers.

The NAL is normally valid for a period of three years. It is important that the manufacturer apply for the renewal of NAL at least three months prior to its expiration. If the renewal application is made after the NAL is expired, the whole approval process is applicable, i.e. the manufacturer needs to repeat the whole process.

Radio Type Approval

The MII regulated both Telecommunication and Radio-communication equipment, however initially there were two organizations under MII accept Radio Type Approval applications, i.e. TAB (Telecom

Administration Bureau) Certification Center and SRRC Certification Center. Currently TAB Certification Center only accepts NAL application and SRRC (State Radio Regulation Committee) takes charges of Radio Type Approvals. The process of Radio Type Approval is similar to that of NAL. The application for Radio Type Approval is free of charge by SRRC, but in-country testing is mandatory. The cost of testing is determined by SRRC and charged by the test labs.

The process and documentation of application for Radio Type Approval is similar to that of NAL application. Quality Assurance is also part of the certification process.

The major difference between NAL and Radio Type Approval is the sampling procedures. For all types of radio equipment, manufacturer is required to provide 20 serial numbers of the equipment in sequence. The testing lab will randomly choose one or more units to perform testing.

The first catalogue of Radio Equipment regulated by MII is shown in Table 1.

In addition to the first catalogue of MII regulated radio products, SRRC has issued more types of intentional radiators under Type Approval. There are currently total of 27 types of Radio Equipment under SRRC regulation, refer to Table 2: Type of Radio Equipment for Radio Type Approval. SRRC also regulated the technical specifications for each type of radio equipment, e.g. frequency range, RF power, spurious emissions, etc. The standards are also quoted by SRRC based on which the radio equipment is tested.

Because the process of radio type approval is similar to that of NAL application but made to a different department of MII, this article will not discuss the details of the application process. However it's worth to mention that although MII regulated Radio Equipment for Type Approvals and SRRC is in charge of the application and certification, manufacturers of radio equipment shall be aware of that SRRC is also responsible of radio spectrum management and monitoring. In addition to Radio Type Approval, SRRC has actually another regulation called "Radio Equipment Importation Permit".

For all radio equipment, the importation permit is required and issued by SRRC when products are shipped into China for any purposes. This regulation was not really strictly implemented but recently Chinese customs started to check importation permit when radio products arrive in China.

The application for importation permit shall be made to SRRC and the following documents are required:

- The application form
- The purpose of the importation, e.g. for sale, for manufacturing, for demonstration to potential customers, for trade show or exhibition, for other reason
- The description of the local company who imports the radios (if applicable)
- The description of radio manufacturer
- The description and technical specifications of the radio equipment
- The photocopy of the B/L (Bill of Lading) if shipped by ocean or the Waybill if shipped by air.
- The photocopy of radio type approval if the radio equipment has been obtained SRRC type approval.

If the radio equipment is under SRRC regulated types of products and is for sales in China, the radio must be type approved. If the radio is not required for Type Approval, the importation permit is required and shall be presented for customs clearance when shipped into China. If the radio is under SRRC regulation but for the purposes other than sales in China, the Radio Type Approval is not required however the importation permit must be presented at the customs. Typically this type of permit is valid for 60 days for customs clearance and the radio shall be shipped out of China within 60 days from the date it arrives in China.

Security Products' Sales Permit

The security products especially made by foreign companies have been tightly under control by Chinese government until recently. The MPS – Ministry of Public Security announced 11 types security products even purely designed and made in foreign countries may be imported into China if they are tested and certified by the MPS. The types of products subjected to MPS approval are listed as below:

- Access Control Products: Firewalls, routers, proxy servers/gateways;
- Authentication Products;
- Security Auditing Products;
- Security Management Products;
- Data Integrity Products;
- Digital Signature Products;
- Non-repudiation Products;
- Commercial Encryption Products;
- Tempest Products;
- Information System Security;
- Information Security Services.

The approval is granted in the form of “Sales Permit”. The process of applying for MPS approval includes two process: a) Product Testing and Evaluation at MPS assigned test lab or research

center, b) Application for MPS Sales Permit at MPS Certification Center.

For testing and evaluation, the following documents are required to be submitted to the testing and evaluation facility:

- Properly signed contract between local legal representative and the test facility;
- Business licenses of the manufacturer and the local legal representative;
- Product documentation including – Configuration management, Delivery and operation, Development process, Guidance for documentation, Product self-testing and evaluation, Weakness analysis or appraisal of the product, etc.
- Approvals from other countries (if there is any);
- Power of Attorney
- Cover Letter identifying the person of contact for such application.

For application for MPS Sales Permit, the following documents are required to be submitted to the MPS Department 11:

- Application Form (one original, one copy)
- Business license of the applicant
- Legal person of the business and contact
- Product description including name, model, and revision
- Description of the major function and scope of application of the product
- Copy of the Testing and Evaluation Report
- Product User Manual
- Power of Attorney
- Cover letter to MPS Department 11 and identifying the person of contact for this application.

It's not guaranteed that MPS approval be granted even the testing and evaluation is successfully completed at the testing and evaluation facilities, the final decision of whether MPS approval is granted is made by the Department 11 of MPS. For the obvious reason, it's highly recommend that Security Products manufacturers at least seek consultation from professional approval specialist before proceed with the application of MPS approval.

The whole process of MPS approval takes from several weeks to several months. The cost of testing and evaluation is determined by the testing and evaluation facilities.

All approved security products are required to affixed MPS “Sticker” to prove the MPS approval. The “Stickers” can be purchased directly at Department 11 of MPS at the time of issuance of MPS Approval.

The “Sticker” has identical MPS certification number for approved product. A sample of MPS “sticker” is shown in Fig 1.

Conclusion

China is one of the few countries that represents a truly 'final frontier' for companies. Drawing on an analogy with the pioneers of the 1849 gold rush, the secret of success is simple - it is all about who gets there first! With the entry to WTO, China is definitely a market everybody has a chance to penetrate. However to access China market, manufacturers shall be prepared to face the formidable maze of culture, laws, and regulations.

This article presented major China Approvals for electrical, electronics, information technology, and telecommunication equipment, i.e. CCC, NAL, Radio Type Approval, and Security Products Sales Permit.

The Table 3 summarizes some important questions for each type of China Approvals.

References

- [1] CCC Implementation Rules (2001.12)
- [2] MII Regulation No 11 (2001.5.10)
- [3] MII Document XBD (2001) 351 (2001.5.14)
- [4] MII Document XBHD (2001) 55 (2001.1.9)
- [5] MII Document XDH (2001) 143 (2001.7.2)
- [6] MII Document XDH (2001) 147 (2001.7.2)
- [7] MPS Announcement No (2001) 003 (2001.7.27)
- [8] MPS Regulation No (1997) 032 (1997.12.12)

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Table 1: MII Catalogue of Radio Equipment for Type Approval

Equipment Type:

Type 1: Wireless Base Stations (B.S.)

- Wireless paging B.S.
- Analogue mobile communication B.S.
- GSM mobile communication B.S.
- CDMA mobile communication B.S.
- GSM B.S. Controller
- CDMA B.S. Controller
- Digital hierarchy B.S.

Type 2: Microwave Communication Equipment

- PDH digital microwave communication equipment
- SDH digital microwave communication equipment
- SPDH digital microwave communication equipment
- Point-to-Multiple Point digital microwave communication system

Type 3: Satellite Communication Earth Station

Table 2: SRRC regulated Radio Equipment for Type Approval

- GSM 900/1800 dual-band digital cellular mobile station
- GSM 900/1800 dual-band cellular base station
- GSM transmitters
- 800MHz CDMA cellular mobile station
- 800MHz CDMA cellular base station
- FM transceiver
- Wireless paging transmitter
- Analogue hierarchy system base station and mobile station
- Digital hierarchy system base station and mobile station
- Point-to-Point Spread Spectrum equipment
- 26GHz LMDS broadband wireless access equipment
- 3.5GHz Wireless Access equipment
- 2.4GHz Short Range Devices
- Fixed satellite earth station equipment
- Digital transmission radio station
- Digital microwave communication repeater
- PHS Wireless Access System
- DECT Wireless Access System
- Cordless phone
- Maritime satellite earth station
- SSB equipment
- Low power wireless devices
- FM Broadcasting transmitter
- AM Broadcasting transmitter
- TV Broadcasting equipment
- Multiple-Channel microwave system

Table 3: Important Questions for China Approvals

Important Questions	CCC	MI	MPS
Are documents required in Chinese?	Yes	Yes	Yes
Is there a labeling requirement?	Yes	Yes	Yes
Is there any safety requirement?	Yes	No	Yes
Is there any EMC requirement?	Yes	No	Yes
Is there any telecom requirement?	No	Yes	No
Is there any quality requirement?	Yes	Yes	No
Must testing be performed in China?	Yes	Yes	Yes
Are all different models tested?	Yes	Yes	Yes

