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# Conformity Assessment in China and Introduction of China Telecommunication Technology Labs

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APT/ITU Conformance and Interoperability Workshop

# Conformity Assessment in China and Introduction of China Telecommunication Technology Labs

26 Aug. 2014

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# Conformity Assessment in China

- NAL ( Network Access License)
- RTA ( Radio Type Approval)
- CCC (China Compulsory Certification)
- CRoHS (China RoHS)
- Others



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# NAL

## □ Requirement:

- All the telecommunication equipment accessing to public telecommunication network shall comply with national specified standards and shall be granted with NAL.

## □ Objective:

- Safeguard the interests of customers;
- Ensure smooth interoperation between equipments deployed in telecom networks;

## □ Product covered:

- Telecom terminals;
- Radio telecom equipment;
- Equipment concerning inter-connection between networks.



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# NAL

## ■ Items tested:

- Telecom
- Radio
- EMC
- Electrical Safety
- Administrative regulations (ex. Information security)



NAL mark

## ■ Organizations:

- The Bureau of Telecommunication Administration of MIIT
- Telecom Equipment Certification Center
- Recognized test Labs
- Experts appraising committee (ex. for new tech.)



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# RTA

- **Law:** All the Radio transmitting equipment used in China should comply the radio management.
- **Objective:** Keep the order of radio telecommunications
- **Product:** Radio telecom equipment (Only for radio transmitting equipment)
- **Requirements:**  
Radio frequency spectrum specialty:  
transmitting frequency, power.....
- **Organizations:**
  - The Bureau of Radio Administration of MIIT
  - Reception Office
  - Recognized test lab



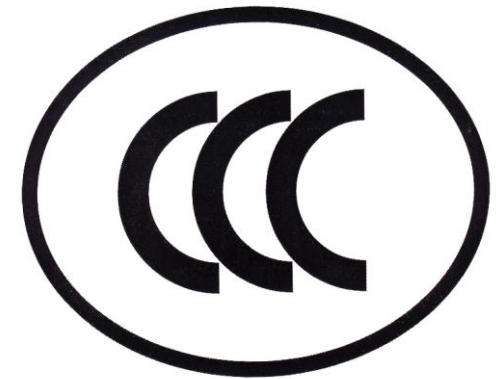
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# CCC

- **Regulation:** All products in the list of CCC should get the certificate before get in to the China market.
- **Objective:** Safeguard the interests of customers
- **Product:** Telecom terminals
- **Requirements:**
  - Safety
  - EMC (i.e. EMI)
- **Organizations:**
  - Certification and Accreditation Administration of P.R. China (CNCA)
  - Recognized Certification Body
  - Recognized test Labs



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# CRoHS

- **Objective:**

To control and reduce environment pollution.

- **Product:**

EIP=Products and their parts made by using electronic information technology (To get the list [www.miit.gov.cn](http://www.miit.gov.cn) )

- **Requirement:**

Regulated hazardous substances (such as Pb, Hg, Cd, Cr<sup>VI</sup>, PBBs, PBDEs etc.)



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# Accreditation Body in China

## ■ Introduction

- China National Accreditation Service for Conformity Assessment (CNAS) is the national accreditation body with responsibility for the accreditation of certification bodies, laboratories and inspection bodies etc.

## ■ International Mutual Recognition

- CNAS is the full member of International Laboratory Accreditation Cooperation (ILAC), Asia Pacific Laboratory Accreditation Cooperation (APLAC), International Accreditation Forum (IAF) and Pacific Accreditation Cooperation (PAC) as well as their Mutual Recognition Arrangement.

■ <http://www.cnas.org.cn>



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# Profile

- China Telecommunication Technology Labs (CTTL), founded in 1981, was named under the authorization of the Ministry of Information and Industry Technology (MIIT) and the State General Administration for Quality Supervision, Inspection, and Quarantine (AQSIQ).
- CTTL is a leading high-tech laboratory on the combined missions of information communication technology development, information communication product standards and test methods research, telecommunication metrology standards and methods research, products inspection, verification and technical assessment as well as testing instruments metrology and evaluation of communication software.



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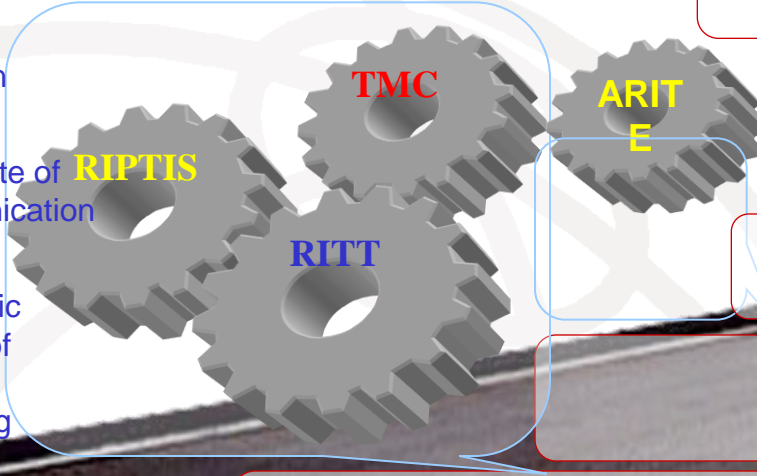
# On the way

**RITT:** Research Institute of  
Telecommunication  
Transmission

**TMC:** Telecommunication  
Metrology Center

**RIPTIS:** Research Institute of  
Post & Telecommunication  
Industry Standards

**ARITE:** CTTL Anti-seismic  
Research Institute of  
Telecommunication  
Equipment, BaoDing



Lab in Shanghai

2011

Lab in zhongqing

2010

Lab in Shenzhen

2008

New stage

2006

Reform

2003

Rename (CTTL)

2000

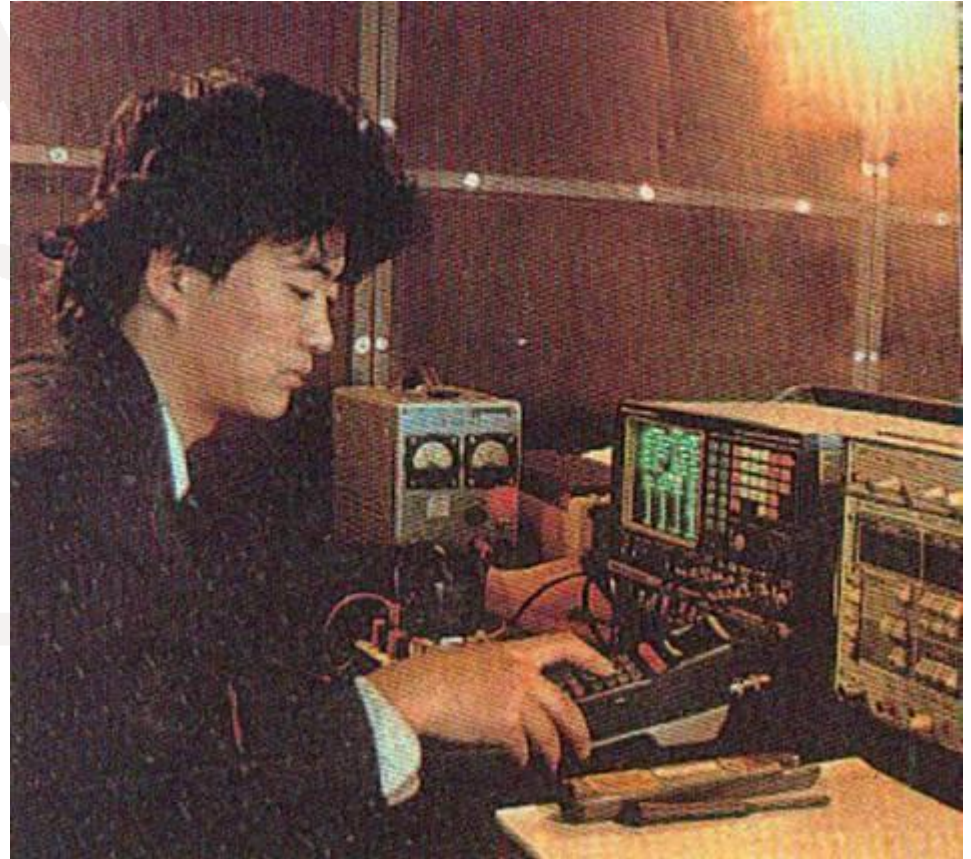
Enlarge

1981~1999

Establish

1981

# Old Photos



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# New Photos



# Administration



Core Business

Policy and Economy Research Institute

Management Research Institute

Standards Research Institute

Intellectual Property Center

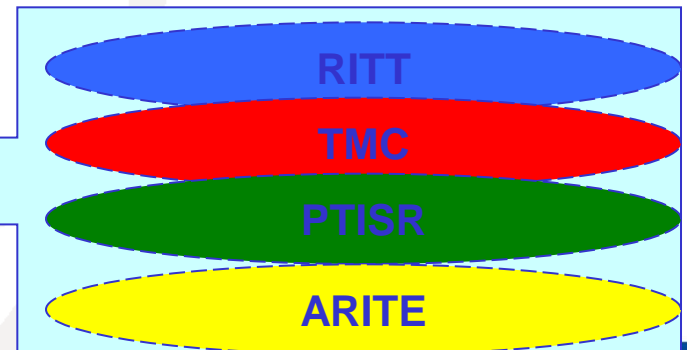
MIIT-affiliated Centers

Telecom equipment certification center

Telecom and Information Services Consultation center

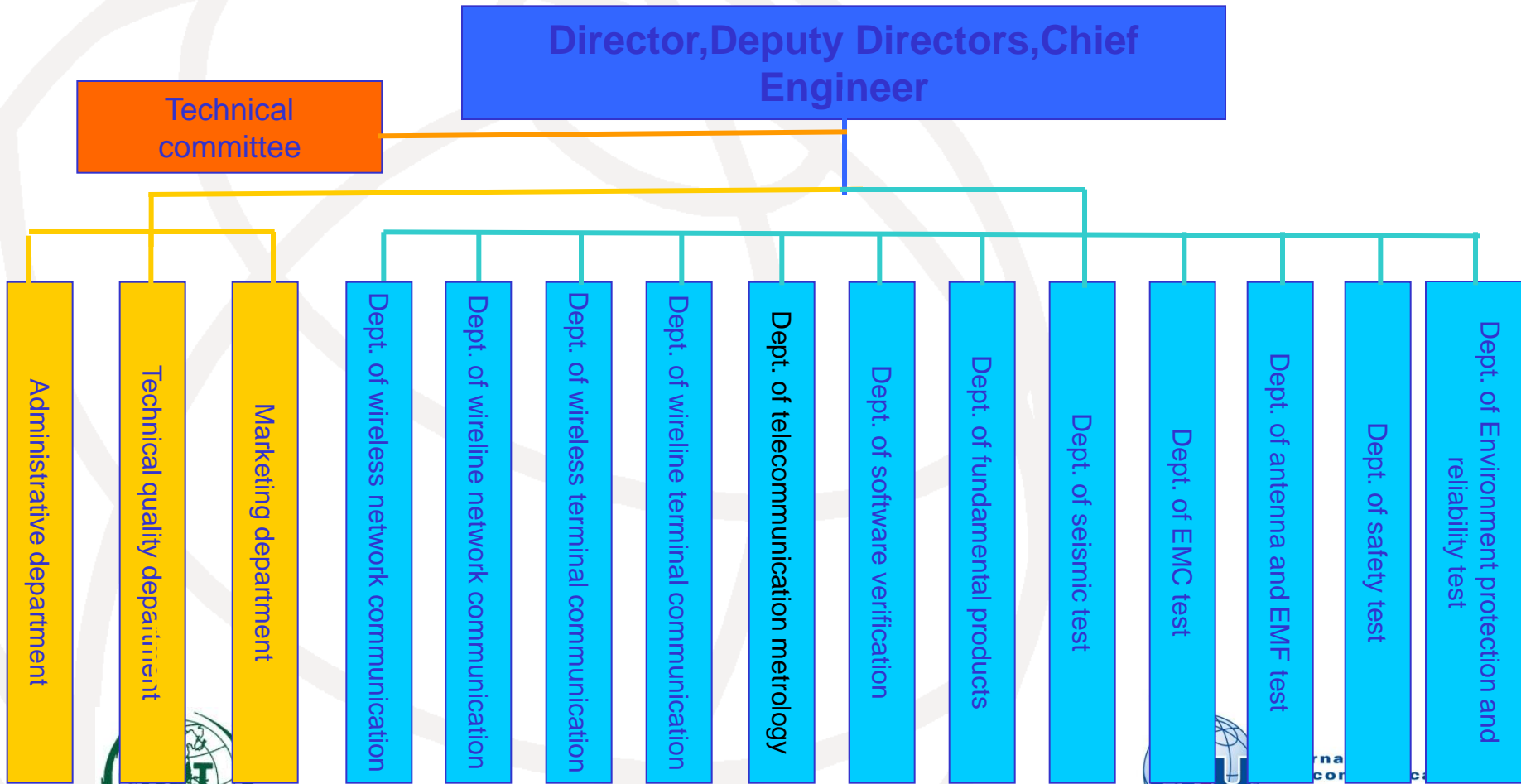


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# Organization (15 Departments)



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# Governmental Authorizations (14 roles)

- National Telecommunication Metrology Station
- National Telephone Quality Supervision and Testing Center
- National Scientific and Technical Results Testing Appraisal Body for Telephone products
- China Testing Body for Network Access of Telecommunication Equipment
- National Laboratory for China Compulsory Certification (CCC)
- Telecommunication Metrology Center, MIIT
- Graphic and Text Communication Equipment Quality Supervision and Testing Center, MIIT
- Mobile Communication Equipment Quality Supervision and Testing Center (Beijing), MIIT
- Telephone Switching Equipment Quality Supervision and Testing Center (Beijing), MIIT
- Posts and Telecommunication Industry Products Quality Supervision and Testing Center, MIIT
- EMC Test Center for Telecommunication Equipment, MIIT
- Anti-seismic Performances of Telecommunications Equipment Quality supervision and Test center, MIIT
- CTTL Software Testing Center, MIIT
- CTTL Environmental Protection Promotion Center, MIIT



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# Quality System

- CTTL has established its quality system according to the ISO/IEC 17025 and achieved successfully accreditation certificates both from the China National Accreditation Service for Conformity Assessment (CNAS) and foreign accreditation bodies (e.g. DakkS, Germany).



No. L0570



Deutsche  
Akkreditierungsstelle



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# Daily Test for Certificates

- Test for Network Accessing License (NAL), Telecom Equipments Anti-seismic Test Certificate (ATC), CCC test, Test for telecom operators in China.
- Test for CE, FCC, GCF, CCF, CTIA, Bluetooth (SIG), NTRA and other global certificates.



# Research Capabilities

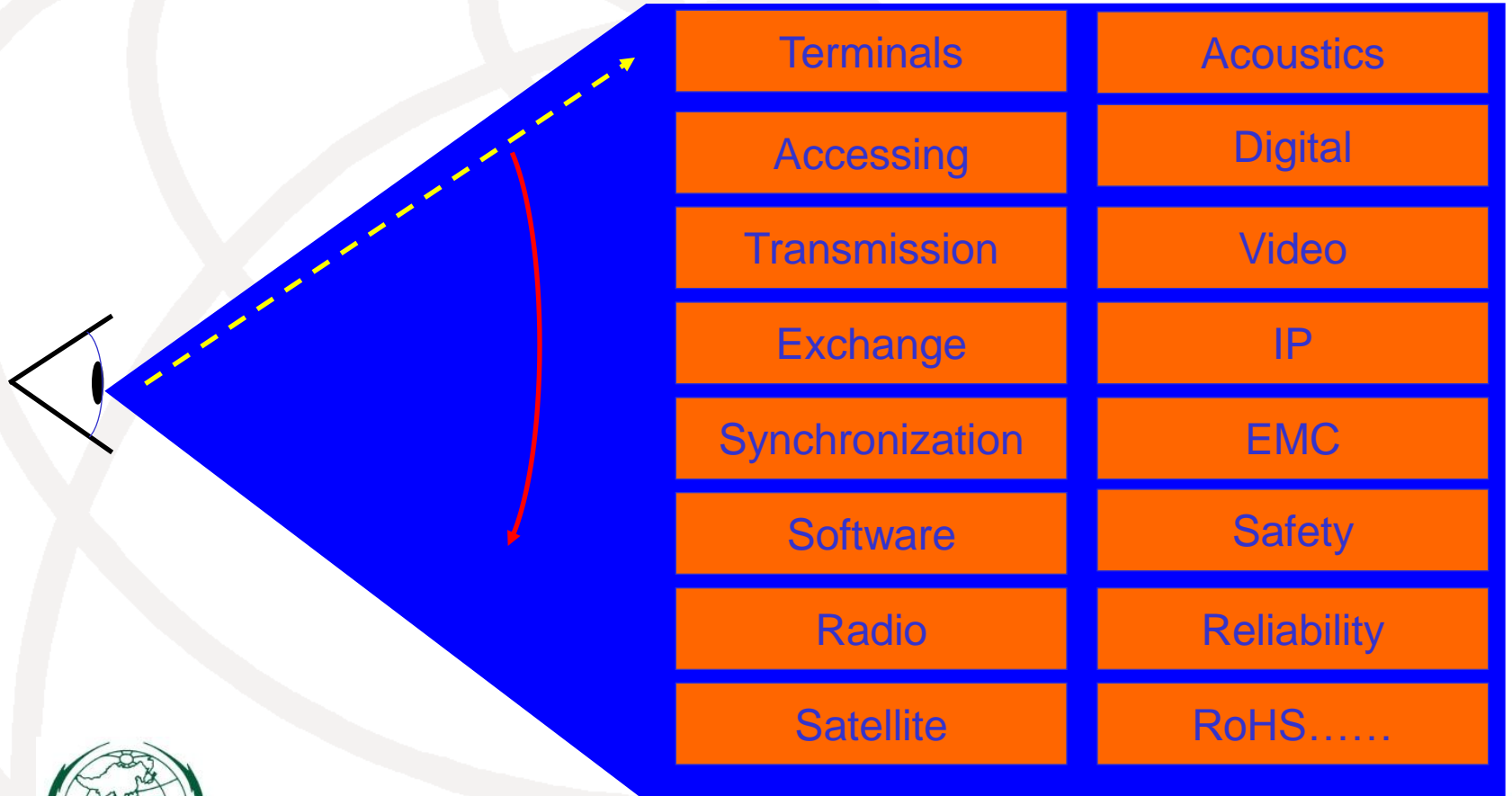
- ◆ Excellent conditions and environment are facilitated for information communication engineering research.
- ◆ A high level R&D team is formed with backbones from taking part in state key projects such as National 5-year plan projects and "863" projects, etc.
- ◆ Expertise in the labs is capable for quality control in designing and manufacturing of telecommunication products, as well as for quality system accreditation of manufactures.
- ◆ CTTL is the active member in attending meetings and research activities of international or foreign organizations such as ITU, IEC/CISPR, IEEE, 3GPP, 3GPP2, GCF, CCF, OMA, RTTECA, PTCRB, CTIA. CTTL is also the member of some major national research and standardization bodies such as CCSA, CEASI, EMIC of CMEA and TAF etc.



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# Test Capabilities



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# Department of Wireless Network Communication

- Department of Wireless Network Communication concentrates on areas of mobile wireless network and wireless access, having the capability for authentication test of Chinese wireless network products and international CE/FCC/SIG.
- Testing capabilities include various mobile communication technologies (TD-SCDMA、WCDMA、cdma2000、LTE、GSM/GPRS、CDMA 1x, etc.) in base stations, repeaters, mobile communication switching system, wireless access system (trunk system、WiMAX、WLAN、Bluetooth、RFID、Zigbee, etc.), microwave communication systems, satellite communication systems and so on.



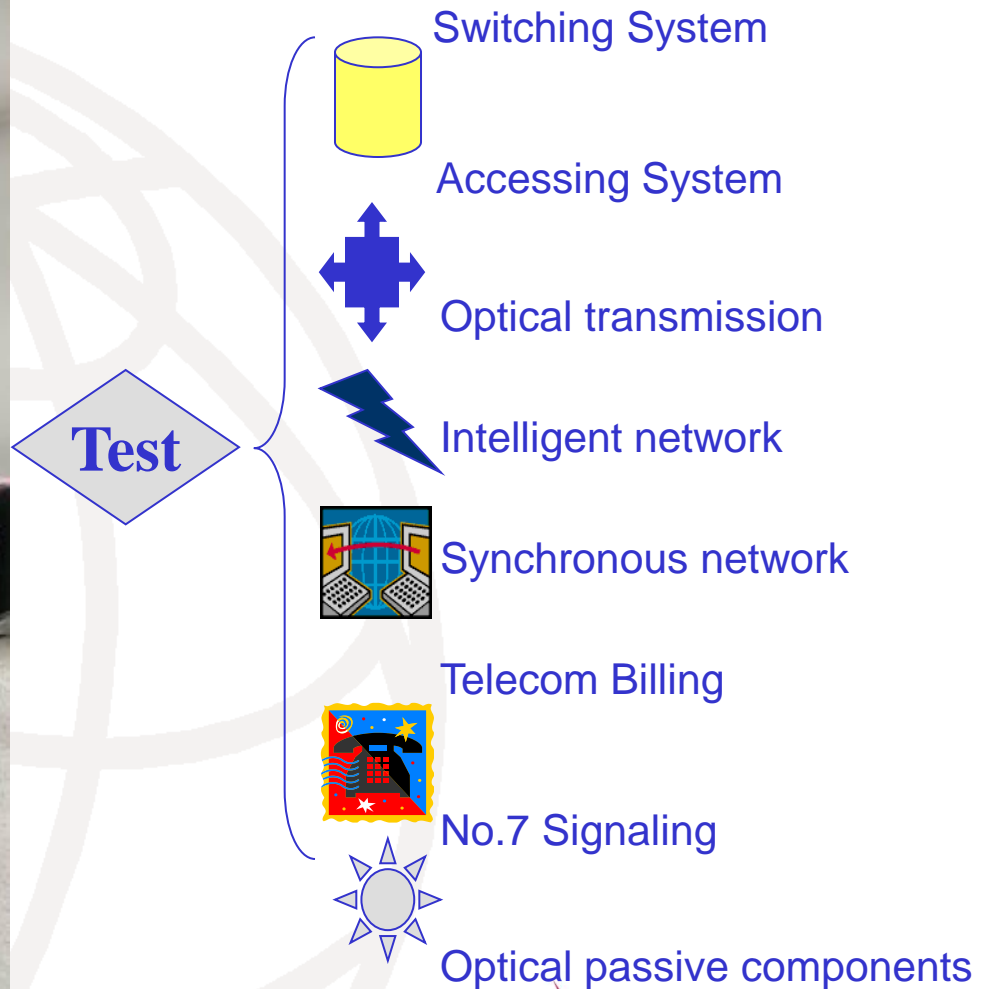
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# Department of Wireline Network Communication



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# Department of Wireless Terminal Communication

- Department provides one stop tests for license of China National Telecommunication Terminal Network Access and full set international certifications of CE/FCC/GCF/CCF/PTCRB . Our research and certification tests cover mobile terminals of various standards, including GSM/GPRS/EDGE, CDMA 1X, cdma2000 EV-DO, WCDMA, TD-SCDMA, LTE, and wireless access system terminal equipments.



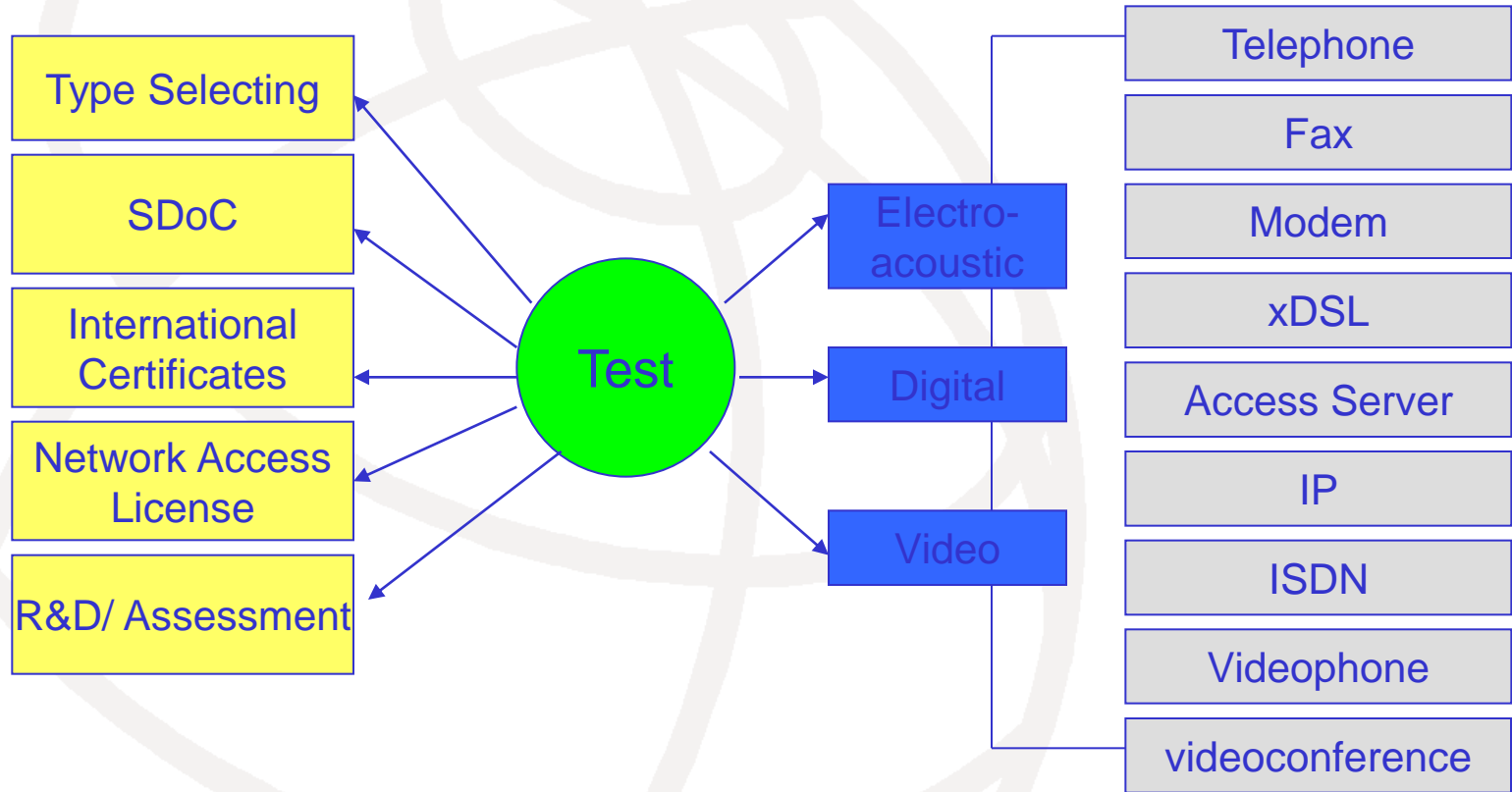
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# Department of Wireline terminal Communication



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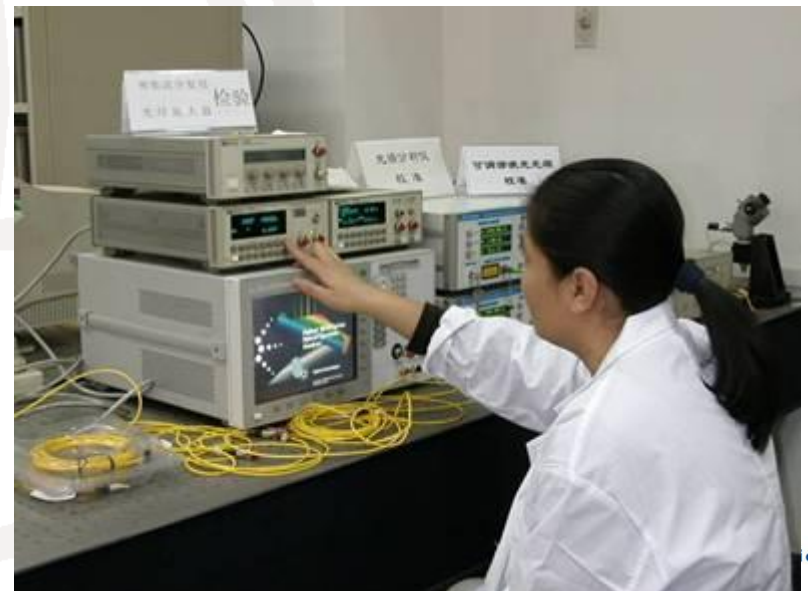


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# Department of Telecommunication metrology

- Department of Telecommunication metrology provides clients with telecommunication instrument metrological verification, calibration, acceptance and arbitration tests services, including Optical transmission, Oscilloscope, Frequency, Time, Level, Electrical Engineering, Attenuator, Data, Signaling, Protocol, RF/Microwave instruments. And provide telecommunication parameters tracing to the source and transferring in conformance with metrology laws and regulations.



# Department of software verification

- Professional engineers in the department of software verification are competent to offer services on the evaluation and diagnosis of embedded communication software, and the verification of software integrity and reliability. The services can be done in the phase of research and development, producing, final production inspection.



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# Department of fundamental products

- Department of fundamental products is mainly devoted to the performance tests and reliability assessment of various telecommunication power supply system and equipments, all kinds of batteries, storage batteries, photo-voltage equipments, supervision systems, environment and energy-saving systems for telecommunication office, out-door equipment rooms and cabinets, various optical/copper/digital/coaxial cables, pipes for buried telecommunication conduit, optical/electro connectors and components, distribution system/equipments, generic cabling systems and connection hardware, Ethernet switches, optical fiber transceivers, as well as telecommunication over-voltage and over-current (surging) protection components.



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# Department of Seismic Test

- The seismic test department equips with the advanced earthquake simulation shaker-table and has various precise vibration and telecommunication instruments. Professional engineers in the lab are capable of offering qualified services and technical consultations on the seismic test.
- Tests and technical services can be conducted scientifically and impartially to satisfy the clients' requirements according to the related standards for various types of products including transmission equipments, switch equipments, accessing equipment, communication power supply, storage battery, GSM base stations, CDMA base stations and 3G base stations, gateway equipment and etc.



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# Department of EMC Test

- Department of EMC Test has several excellent EMC test environment with well equipped  $23 \times 17 \times 10\text{m}$  and  $12 \times 6 \times 6\text{m}$  full/semi-anechoic chambers as well as an open test site. We are authorized to provide EMC and radio testing in accordance with Chinese standards, international and essential area standards. Technical consultation can be also provided and has helped many clients to solve difficult tests and debugging problems.



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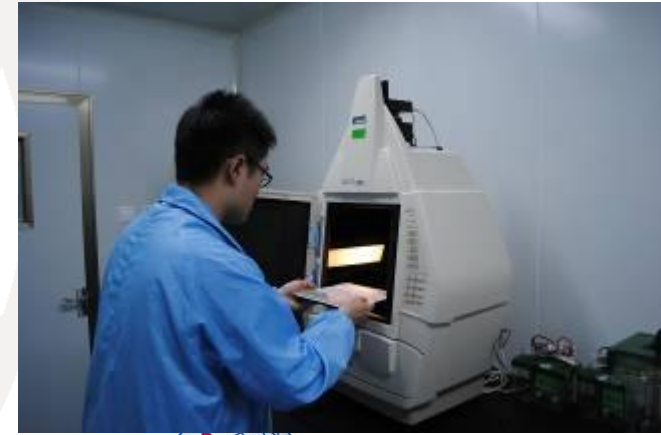


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# Department of Antenna and EMF Test

- For OTA part, as the first authorized OTA test laboratory for the converged mobile devices, test capabilities covers all the bands of 2G、3G、 WLAN、 WiMAX and all the other main protocols.
- For EMF part, it has been founded the first SAR measurement and probe calibration system in China. Till now, there have been four SAR measurement systems in all.
- The advanced Bio-Electromagnetic lab has a cell cultural room with cleanliness of thousand scale and a P2 cleanroom with cleanliness of ten thousand scale accredited by CMA. We can engage in the work of cell EMF exposure tests in the power frequency and GSM/DCS/UMTS frequency bands, animal in-vivo



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# Department of Safety Test

- Department of Safety Test not only provides safety test for the information technology equipment, wired/wireless telecommunication equipment, power supply , battery and etc, but also offer the certification service of NAL, CCC, CE, FCC.
- Department also possesses a complete lightning (surge) system and overvoltage-overcurrent test system. At the same time safety methods and standards consultation can be provided.



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# Department of Environment Protection and Reliability Test

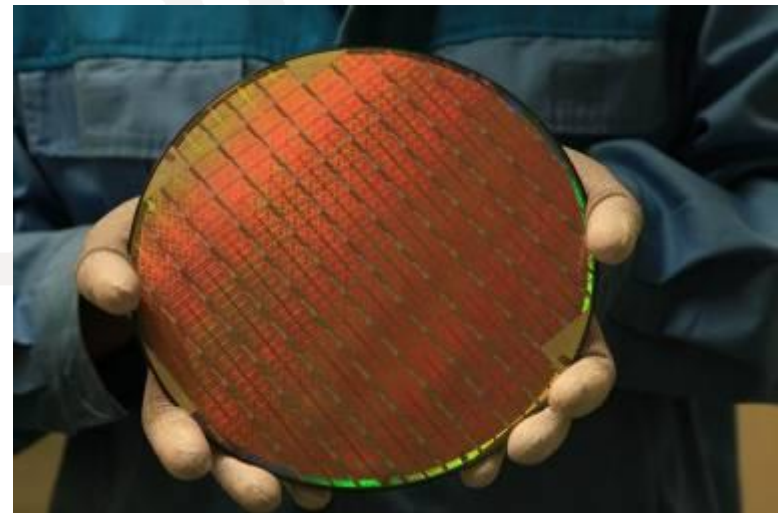
- works on hazardous substances test, environment reliability test and related analysis of electrical and electronic products, components and materials;
- provides consulting service for the recover evaluation system of waste electrical and electronic products, green product design and green product supplying chain;
- develops and revises national and industrial standards about energy saving and comprehensive utilization in related environment protection fields





# IC/SOC lab

- **CTTL** has established an IC/SOC lab. The IC/SOC lab has unparalleled conditions and environments, which are facilitated for IC/SOC designing and testing and verification.
- The lab is capable of providing all-round developing and testing services for our costumers. Our capabilities include probing and testing services, RF & analog projects and up to 12 inch wafer testing.



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*Thank you !*



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