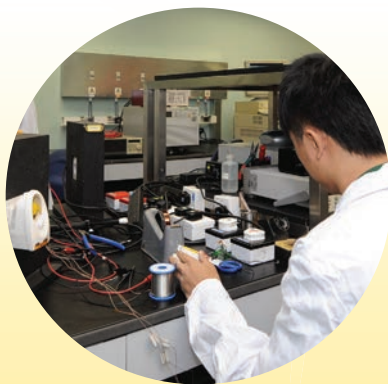


Tested in Hong Kong Certified in Hong Kong

ELECTRICAL AND ELECTRONIC PRODUCTS



FOREWORD

Safety is a critical issue for the public with regard to electrical and electronic products (EEPs). In recent years, governments, NGOs, corporations and consumers alike have expressed growing concerns over the sustainability of EEPs in respect of their impact on the environment and public health. As such, more and more consumers look for eco-friendly, energy-efficient and reliable EEPs in the market.

EEP testing and certification services in Hong Kong play a vital role in ensuring the safety and quality of the products exported to overseas markets.

"Tested in Hong Kong, Certified in Hong Kong" indicates the highest level of professional integrity and quality assurance.



Hong Kong Council for Testing and Certification

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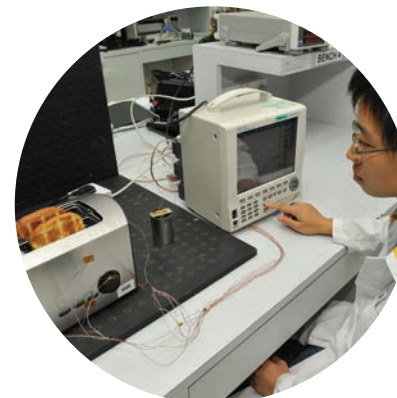
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BENEFITS OF EEP TESTING & CERTIFICATION

EEPs are widely used in almost all aspects of daily life including audio and video equipment, children’s toys, communication devices, household appliances and lighting products. EEPs are also invaluable for essential medical and public utilities. Safety and performance of EEPs are thus of paramount concern. It is vital that all EEPs sold meet stringent and performance standards to ensure they are safe and suitable for their intended use.

The EEP industry uses numerous third-party testing and certification services to ensure products comply with international / national standards or regulations specified by importing countries. Through testing and certification, the quality of EEPs can be enhanced. This helps manufacturers and traders to minimise the chance of recalls, returns and complaints, and to establish a good reputation as well as to enhance product sales.



COMMON EEP TESTING & CERTIFICATION SERVICES

Accredited testing and certification organisations in Hong Kong can provide professional services in EEP testing, inspection and certification at different stages throughout the product supply chain.

Testing

Testing is the determination of one or more characteristics of an object of conformity according to a specified technical procedure. EEPs are commonly tested, in accordance with standardised technical procedures, to determine if the products conform to requirements set out by importing countries.



Common safety tests:

- Electrical hazard tests
- Photobiological safety hazard tests
- Thermal tests – including excessive temperature and fire hazard risks
- Mechanical hazard tests
- Reliability tests for safety critical components, e.g. fuses, thermostats, etc.
- Electromagnetic energy exposure tests to determine whether the Specific Absorption Rate of radio frequencies (RF) is within international electromagnetic field exposure guidelines



- Chemical tests, such as leaching of dangerous chemicals, screening for harmful chemicals like Bisphenol A (BPA), formaldehydes, halogens and polycyclic aromatic hydrocarbons (PAHs)
- Noise and acoustic tests – especially for headphones and handsets
- Transit tests to assess shock, vibration, compression and atmospheric changes that may be incurred during the transportation of goods



Common performance tests:

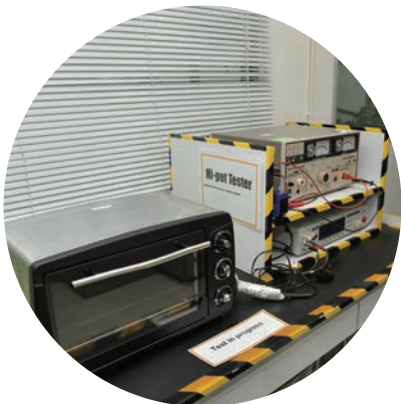
1. Electromagnetic compatibility (EMC) and radio frequency (RF) tests to determine performance reliability of an EEP when other EEPs operate in close proximity. These tests are particularly important for EEPs used in the medical sectors.



An EEP's performance will be tested:

- i. against electromagnetic emissions influencing other EEPs (emission tests);
- ii. within allocated frequency bands (operating frequency tests); and
- iii. against incoming electromagnetic disturbances (immunity tests).

2. Energy-efficiency tests
3. Lifetime tests for lamps, including compact fluorescent lamps and LED lamps
4. Functionality and usability tests



Certification

Certification is a third-party attestation related to products, processes and services. Certification activities can be divided into –

(i) Management System Certification, such as:

- ISO 9001 for quality management
- ISO 14001 for environmental management
- ISO 50001 for energy management systems; and
- SA8000, BSCI, ICTI for Corporate Social Responsibility Certification

(ii) Product Certification

Sometimes product certification is required for EEPs such as the China Compulsory Certification (CCC) and GS Certification Scheme.



Inspection

Inspection is the examination of a product, product design, process and installation and determination of its conformity with specific requirements. Examples of EEP inspection services include inspection of manufacturing processes and pre-shipment inspections at the factory to determine whether a particular batch of EEPs complies with the relevant buyer's specifications.



TESTING AND CERTIFICATION SERVICES BASED ON INTERNATIONAL / NATIONAL REQUIREMENTS OR STANDARDS

- Accredited testing laboratories and certification bodies in Hong Kong are able to test and certify EEPs in line with the requirements shown in their scope of accreditation.
- Testing and certification requirements may include the regulatory requirements and standards listed on these two pages.

a. Regulatory requirements

EUROPEAN UNION

- Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Electromagnetic Compatibility (EMC) Directive
- Low Voltage Directive (LVD)
- Restriction of Hazardous Substances (RoHS) Directive
- Radio Equipment Directive (RED)
- Waste Electrical and Electronic Equipment (WEEE) Directive

AUSTRALIA

- Commonwealth of Australia Consolidated Acts

UNITED STATES

- Code of Federal Regulations (CFR)



b. Standards

INTERNATIONAL

Standards by:

- International Electrotechnical Commission (IEC)
- International Organisation for Standardization (ISO)

UNITED STATES

Standards by:

- American National Standards Institute (ANSI)
- ASTM International (ASTM)
- Institute of Electrical and Electronics Engineers (IEEE)

EUROPEAN UNION

European Standards (EN) by:

- European Committee for Standardization (CEN)
- European Committee for Electrotechnical Standardization (CENELEC)
- European Telecommunications Standards Institute (ETSI)

UNITED KINGDOM

Standards by:

- The British Standards Institution (BSI)

CHINA

Standards by:

- Standardization Administration of the People's Republic of China (SAC)

JAPAN

Standards by:

- Japanese Industrial Standards Committee (JISC)

AUSTRALIA and NEW ZEALAND

Standards by:

- Standards Australia (AS) and Standards New Zealand (NZS)

COMMON MARKS FOR EEPs

Accredited testing laboratories in Hong Kong may provide testing results which support competent certification bodies in providing product certification services for EEPs in accordance with specific product certification schemes. Once a product is certified by the certification body, the corresponding supplier may show a certification mark on the product.

(i) The following certification marks are commonly found on EEPs and are only issued after a competent certification body has demonstrated the product's conformity with specific certification requirements.

(a) China Compulsory Certification (CCC) System [CCC Mark]

Region: Mainland China

The China Compulsory Certification (CCC) System, implemented in 2002, is a compulsory product certification system to ensure safety of products, including EEPs, which are imported, sold or used in Mainland China.

(ii) The following marks are also commonly found on EEPs as the manufacturer's declaration that the products have been tested to demonstrate their conformity with specific safety and performance requirements.

(a) CE Mark

Region: European Union

CE marking indicates that a product has been assessed by the manufacturer and deemed to meet EU safe, health and environmental protection requirements. It is required for products manufactured anywhere in the world that are then marketed in the EU. It is the sole responsibility of the manufacturer to ensure the product's conformity with all relevant EU-wide requirements before affixing the CE Mark and drafting and signing the "Declaration of Conformity".

(b) GS Certification Scheme [GS Mark]

Region: Germany

A product such as EEP which is certified to the voluntary GS, i.e. *Gepföfte Sicherheit* (tested for safety), indicates that the product conforms with the requirements of the GS Certification Scheme.

(b) UKCA Mark and UKNI Mark

Region: UK

The UKCA and UKNI marking regime is a product marking that is used for goods placed on the market in Great Britain (England, Wales and Scotland) and Northern Ireland respectively. It covers most goods which previously required the CE marking and demonstrates that all the requirements of the legislation have been met.

(d) SAFETY Mark

Region: Singapore

All EEPs which are in the List of Controlled Goods under the Consumer Protection (Safety Requirements) Regulation shall be tested to specified safety standards, registered with Enterprise Singapore and affixed with the SAFETY Mark before they can be sold in Singapore. Registration of EEPs is based on either Certificates of Conformity (CoC) issued by designated third party Conformity Assessment Bodies or Supplier's Declaration of Conformity (SDoC) issued by Registered Suppliers.

(f) KC Mark

Region: South Korea

EEPs to be sold in South Korea are required to have a KC (Korea Certification Mark) Certification.

(c) Diamond PSE Mark and Circle PSE Mark

Region: Japan

The Diamond PSE Mark and Circle PSE Mark is required for specified electrical appliances and materials listed in the Electrical Appliances and Materials Safety Act (DENAN) or other EEPs respectively imported to Japan. This Mark can be attached to an EEP once its conformity to the mandatory technical requirements is confirmed.

(e) Gulf Conformity Mark

Region: Member States of the Co-operation Council for the Arab States of the Gulf (GCC)

It is compulsory for the manufacturer of an EEP to affix the Gulf Conformity Mark to the EEP before it is imported to any Member State of the GCC. Such Mark demonstrates the EEP's compliance with applicable GCC technical regulations.

(g) Energy Star

Region: United States

Energy Star is a United States Environmental Protection Agency (EPA) voluntary programme that helps businesses and individuals save money and protect our climate through superior energy efficiency. It was jointly created by EPA and the Department of Energy in 1992.



CONSULTANCY SERVICES

Local testing and certification organisations also provide professional consultancy services related to country-specific regulatory requirements.

Consultancy services provided by Hong Kong testing and certification organisations include evaluation of product design and specifications; development of Corporate Social Responsibility (CSR) strategies; risk assessment; factory capability and capacity assessment; benchmarking evaluation; process control planning and monitoring; product quality enhancement; loading supervision and product-return analysis.

For those newly developed EEPs, advisory services will be provided on the development of new standards for testing methods and feasibility studies to help assure product compliance with the regulatory requirements of the importing countries.

To maintain impartiality, testing and certification organisations should not carry out consultancy as well as testing and certification services for the same client.



NEED MORE INFORMATION ABOUT INTERNATIONAL STANDARDS?

The Innovation and Technology Commission (ITC) provides the latest information about local and overseas standards and technical regulations.



Its services include:

- Standards sales service
- Technical enquiry service on product standards and safety requirements

Address 36/F, Immigration Tower,
7 Gloucester Road,
Wan Chai,
Hong Kong

Tel No. (852) 2829 4820

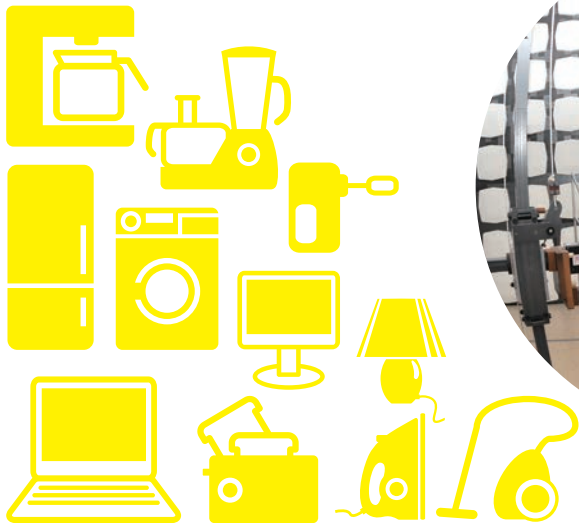
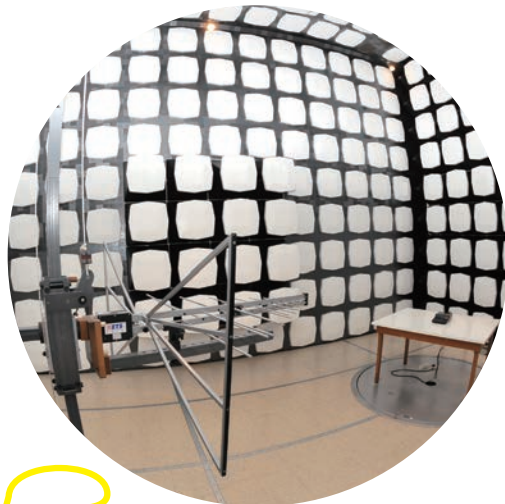
Fax No. (852) 2824 1302

E-mail qsdiv@itc.gov.hk

CHOOSING QUALITY TESTING & CERTIFICATION SERVICE PROVIDERS

Look for service providers recognised by an accreditation body – laboratories, inspection bodies and certification bodies accredited to ISO/IEC 17025, ISO/IEC 17020, ISO/IEC 17021 and ISO/IEC 17065 respectively.

Accredited organisations are assessed to ensure that they are competent to perform specific activities and have implemented a management system that complies with relevant international standards. With accreditation, the reliability of results provided by testing and certification bodies can be assured.



HONG KONG ACCREDITATION SERVICE

Having a robust accreditation system is one of Hong Kong's key advantages in developing the testing and certification industry. Accreditation in Hong Kong is voluntary and provided by the Government's Hong Kong Accreditation Service (HKAS).

Through participation in Mutual Recognition Arrangements (MRAs) – administered by international cooperations of accreditation bodies – conformity assessment results issued by HKAS-accredited organisations are widely recognised by over 100 economies. These economies cover all major trading partners of Hong Kong. MRAs greatly facilitate cross-border trade of EEPs.

A directory of the accredited testing and certification organisations and their scope of accreditation can be found on the HKAS website: www.hkas.gov.hk



HKAS ACCREDITATION

Endorsed test reports and certificates issued by accredited organisations bear the HKAS accreditation symbol with the registration number of the accredited organisations.

The HKAS accreditation symbol serves as a recognisable 'quality indicator' for the conformity assessment activities specified in the test reports and certificates.



HONG KONG— REGIONAL TESTING & CERTIFICATION HUB

Hong Kong has a rich and trusted heritage in international EEP testing and certification. The industry has long been providing high volume of testing and inspection services for EEPs globally.



Global best practices & excellent knowledge of international markets

Hong Kong has become the base for EEP testing and certification bodies from around the world. Drawing on the strengths of global testing and certification best practices and its superb knowledge of international markets, Hong Kong has long been at the forefront of EEP testing and certification.

Professionalism, technical competence & integrity

Hong Kong's EEP testing and certification organisations are internationally recognised for their in-depth knowledge of worldwide testing standards, adherence to stringent working protocols, reliability and integrity. They have a high level of technical competence and are able to respond quickly to changes in market needs. The industry is renowned for its integrity and credibility. Reports and certificates issued by the industry are well-trusted by buyers globally.



International expertise & Mainland China know-how

Manufacturers, importers and vendors are required to comply with international and national legislation covering safety, health and environmental issues. Non-compliance can have far-reaching consequences and often leads to product liability claims.

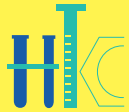
Hong Kong is uniquely located within the Pearl River Delta region, one of the largest manufacturing hubs in the world. On a daily basis Hong Kong laboratories and certification bodies deal with testing and certification of EEPs that shipped all over the world. As such, they have amassed decades of professional experience in relevant EEP directives and standards across multiple markets globally.



ACKNOWLEDGEMENTS

TESTED IN HONG KONG, CERTIFIED IN HONG KONG, RESPECTED GLOBALLY

This booklet has been written collaboratively by the Hong Kong Council for Testing and Certification and the Hong Kong Association for Testing, Inspection and Certification. It also contains contributions from numerous industry experts.



Hong Kong Council for Testing and Certification

Testing and certification is one of the economic sectors where Hong Kong enjoys clear advantages and has good potential for further development. The Government of the Hong Kong Special Administrative Region established the Hong Kong Council for Testing and Certification in September 2009 to advise on the overall development strategy of the industry. The vision of the Council is for Hong Kong to develop into a regional testing and certification hub by promoting the "Tested in Hong Kong, Certified in Hong Kong" branding.



Hong Kong Association for Testing, Inspection and Certification

The Hong Kong Association for Testing, Inspection and Certification (HKTIC) was established in 1981 as a non-profit organisation. It promotes and contributes to the development of the testing and certification industry in Hong Kong and provides a platform for dialogue with the Government and other organisations. With close to 60 members, including all the major players, HKTIC represents around 70% of the private-sector employment in the testing and certification industry.



GLOSSARY

Accreditation

Attestation issued by a third-party organisation (i.e. accreditation body), such as HKAS, to Conformity Assessment Bodies (CABs), including testing laboratories, inspection bodies and certification bodies, conveying formal demonstration of their competence to carry out specific conformity assessment tasks including testing, calibration, inspection and certification.

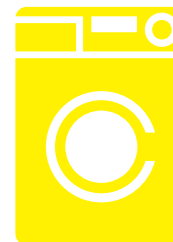
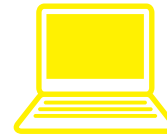
Certification

Certification refers to the written statement issued by a third-party assuring that a product, process, person, or system conforms to specific requirements.

Corporate Social Responsibility (CSR)

CSR involves companies better managing business processes so they have an overall positive impact on both the environment and the society.

The term generally applies to company efforts that go beyond what may be required by regulators or environmental protection groups. It is also referred to as "corporate citizenship" and often involves short-term investment in order to promote longer-term social and environmental benefits.





Inspection

Examination of a product design, product, process or installation and determination of its conformity with the requirements.

ISO

The International Organization for Standardization is the world's largest developer and publisher of international standards. The organisation is non-governmental and forms a bridge between the public and private sectors. The ISO's Central Secretariat, based in Geneva, Switzerland coordinates a network of over 160 national standard institutes.

REACH

The European Community Regulation on chemicals and their safe use which deals with the Registration, Evaluation, Authorisation and Restriction of Chemical substances. REACH aims to enhance both consumer safety and the environment through the better and earlier identification of potential dangers of chemical substances.

REACH also aims to foster innovation in, and enhance the competitiveness of, the EU chemicals industry.

RoHS

The Restriction of Hazardous Substances (RoHS) Directive aims to restrict certain dangerous substances commonly used in electrical and electronic equipment. The National Measurement Office in the UK – working in partnership with the Department for Business, Innovation and Skills – is the market surveillance authority responsible for enforcing the RoHS Regulations within the UK.

The RoHS Directive bans the placement on the EU market of any electrical and/or electronic equipment that contains more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

Standard

A standard is a document that provides requirements or specifications for certain materials, products, processes, services and system. When formulating a new standard, it is important to ensure balanced inputs from industry representatives; public health and regulatory officials; and end users. Standards are also constantly reviewed and revised to ensure that they are up-to-date and technically sound.

Testing

Testing is the determination of one or more characteristics of an object according to a specified technical procedure.

INFORMATION ON INTERNATIONAL STANDARDS

International Testing Standards

- International Organization for Standardization: www.iso.org
- International Electrotechnical Commission: www.iec.ch

EU Testing Standards

- European Committee for Standardization: www.cen.eu
- European Committee for Electrotechnical Standardization: www.cenelec.eu
- EU Telecommunications Standards Institute: www.etsi.org

Mainland China Testing Standards

- The Standardization Administration of the People's Republic of China (SAC): www.sac.gov.cn

US Testing Standards

- American Society for Testing and Materials (ASTM): www.astm.org
- American National Standards Institute (ANSI): www.ansi.org
- Institute of Electrical and Electronics Engineers (IEEE): www.ieee.org

HONG KONG COUNCIL FOR TESTING AND CERTIFICATION

www.hkctc.gov.hk

