



ELECTRICAL AND ELECTRONIC TOYS
PARTNER WITH SGS TO ENSURE THE COMPLIANCE AND
SAFETY OF YOUR TOYS FOR TARGET MARKETS

SGS PROVIDES TESTING AND CERTIFICATION SOLUTIONS FOR ELECTRICAL AND ELECTRONIC TOYS

Electrical and electronic toys provide hours of fun for children. From early learning to gaming and computing, electrical and electronic toys (EE toys) help children develop their imagination, language skills, dexterity and more, through fun, role-playing and education. Their use should be simple and safe.

SGS can help you ensure EE toys comply with national, regional and international legal regulations, including manufacturing, construction and performance requirements, as well as labelling requirements for both the products and their packaging. In addition, our product safety and design evaluation services, conducted at the early stages of production identify all applicable regulatory and safety requirements that EE toys must comply with.



DEFINITION OF AN ELECTRICAL AND ELECTRONIC TOY

Battery operated toys and electrically alternating current (AC) operated products intended for use by children under 14 years of age, include, but are not limited to:



Model railway and car racing sets



Electric ride-on toys



Dolls houses with interior lighting



Educational toys, computer toys and toy computers (toys consisting of a screen and activating means, such as a joystick or keyboard)



Sound and/or light toys (those with sounds and/or lights that depend on electricity; electronic musical toys)



Radio controlled toys



Laser LED toys with flashing lights



UV blacklight pen

POTENTIAL DANGERS

Improperly used or badly designed EE toys can rapidly turn from a source of fun into a serious hazard. EE toys can become dangerous if not used properly, used without adequate supervision, or if they have faults in their design/construction.

Electrical and electronic toys pose many risks over and above the mechanical hazards that are common to all toys. Adding electricity, either battery or mains supply, presents a number of risks to children including:

- Electric shocks
- Burns, especially if a product has a heating element

For example, in battery powered toys problems may occur if the wrong batteries are used, if old and new batteries are mixed, or if batteries are inserted incorrectly.

COMPULSORY MARKING

Toys entering different countries and territories around the world must bear the specific marking for that country or territory. In the EU/EEA, CE marking is subject to the general principles under Article 30 of Regulation (EC) 763/2008. It must be affixed visibly, legibly and indelibly to the toy, to an affixed label or to the packaging. This marking signifies that toys sold in the EU/EEA have been assessed to meet the safety requirements in the toy safety Directive 2009/48/EC and supports fair competition.

Other countries and territories have unique markings with principles similar to those for CE marking, including:

- Australia / New Zealand: RCM Mark (radio-controlled toys)
- China: CCC Mark
- Eurasian Customs Union¹: EAC Mark
- Gulf States²: G-Mark
- Indonesia: SNI Mark
- USA: FCC logo (toys subject to authorization under a Declaration of Conformity)

¹Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia

²Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates and Yemen

STANDARDS AND REGULATIONS APPLICABLE TO ELECTRICAL AND ELECTRONIC TOYS

Standards and mandatory regulations have been established in major toy markets to reduce the risk of injury from electrical and electronic toys. In addition to general toy safety, there are specific regulations that address the major electrical, mechanical and thermal hazards of electric toys.

EUROPE

In Europe, toys fall within the scope of multiple standards and directives. Battery and/or mains powered electronic toys must also comply with:

1. Toy Safety Directive 2009/48/EC
2. EMC Directive 2014/30/EU
3. RED 2014/53/EU
4. RoHS2 Directive 2011/65/EU
5. WEEE Directive 2012/19/EU
6. Battery Directive 2006/66/EC

Requirements of common to these EU Directives include:

- Obligations for economic operators (manufacturers, authorised representatives, importers and distributors)
- Technical documentation
- Declaration of Conformity
- Completion of a safety assessment
- Compulsory CE marking

Visit www.sgs.com/eutoydirective to know more about SGS one-stop solution for the EU Toy Safety Directive 2009/48/EC

1 EU TOY SAFETY DIRECTIVE 2009/48/EC

All toys distributed and marketed in the EU, electronic or not, must comply with the requirements of the EU Toy Safety Directive. This defines the minimum safety requirements for all toys. In addition, the directive also defines a number of properties specific to electrical and electronic toys.

The directive aims to reduce toy related accidents by identifying hazards and taking into account their foreseeable use.

Annex II, Section IV of the toy safety directive deals directly with electrical properties. It includes nine requirements relating to electrical safety, prevention of electrical hazards and protection against fire hazards, as well as risks arising from electromagnetic compatibility and radiation.

FOCUS ON EN 62115: ELECTRIC TOYS – SAFETY

Rather than placing specific restrictions on the design of electric toys, the EN 62115 standard applies a hazard-based approach to products. This allows potential hazards to be designed out of a product, without regulatory limitation. When reading and referring to the standard, the following definitions should be kept in mind:

- Hazard – a potential source of harm
- Risk – the probable rate of occurrence of a hazard causing harm, and the degree of severity of the harm
- Harm – physical injury or any other damage to health, including long-term health effects

To achieve compliance with EN 62115, electric toys must also comply with EN 71-1 (physical and mechanical requirements), EN 71-2 (flammability) and EN 71-3 (migration of certain elements).

2

EMC DIRECTIVE 2014/30/EU

Electro Magnetic Compatibility (EMC) Directive 2014/30/EU applies to all new products, including electrical toys, manufactured and sold within the EU, as well as new and old products manufactured outside the EU, but marketed within it.

The directive regulates the electromagnetic compatibility of equipment. In this context, all electric toys must be designed and constructed to ensure that:

- Electromagnetic disturbance does not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended
- They have a level of immunity to electromagnetic disturbances to enable them to operate without unacceptable degradation in the context of the intended use

The standards within the directive that apply to toys are EN 55014-1, EN 55014-2 and their amendments. Testing includes:

1) For battery operated (B/O) products:

- EN 55014-1 A1&A2: Radiated disturbances test
- EN 55014-2 A1 &A2: ESD test

2) For electrical AC (alternating current) mains products:

- EN 55014-1 A1&A2: Power disturbances test, terminal voltage test
- EN 55014-2 A1&A2:
 - ESD test
 - Radio frequency electromagnetic fields test
 - Fast transients test
 - Surges test
 - Injected currents test
 - Voltage dips and interruptions test
 - Harmonics test
 - Voltage fluctuation test

3 RADIO EQUIPMENT DIRECTIVE (RED) 2014/53/EU

All radio equipment, and equipment intended to be connected to public telecommunications networks within the EU fall within the scope of the RED. It establishes a regulatory framework for the marketing and use of radio equipment within the EU. It ensures:

- The health and safety of people, domestic animals and property is protected, including the safety requirements set out in Directive 2014/53/EU, but with no voltage limit
- Adequate levels of electromagnetic compatibility, as set out in the EMC Directive, 2014/30/EU

Radio equipment must be constructed so that it supports and makes effective use of the radio spectrum, in order to avoid harmful interference. Equipment within certain categories or classes shall be constructed in a manner that complies with essential requirements.

EN standards applicable for battery operated remote control toys are:

1) For toys using the frequency 13.56MHz:

- EN 300 330-2/EN 301 489-3
- EN 62479

2) For toys using the frequencies 27/40/49MHz:

- EN 301 489-3/EN 300 220-2 V2.4.1
- EN 62479

3) For toys using the frequency 2.4GHz, less than 10mW:

- EN 300 440-2/EN 301 489-3
- EN 62479

The Radio Equipment Directive (RED), replacing the R&TTE Directive, came into force on June 12, 2016.

4 ROHS2 DIRECTIVE 2011/65/EU

All toys with an electrical and electronic function, even if it is a secondary function, fall within the scope of Restriction of the use of certain Hazardous Substances (RoHS2), Directive 2011/65/EU.

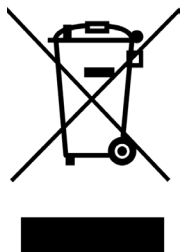
This directive restricts the use of hazardous substances in the manufacture of various types of electrical and electronic equipment. It is closely linked with the Waste Electrical and Electronic Equipment Directive (WEEE) 2012/19/EU. The latter sets collection, recycling and recovery targets for electrical goods, and is part of a legislative initiative to solve the problem of huge amounts of toxic waste in landfill.

Manufacturers must demonstrate a product's compliance by creating technical documentation in accordance with both standard EN 50581 and Annex II, Module A of Decision 768/2008/EC.

5 WEEE DIRECTIVE 2012/19/EU

The waste electrical and electronic equipment (WEEE) Directive 2012/19/EU sets out measures to protect the environment and human health. This is to be achieved by preventing, or reducing, and managing the adverse impacts of WEEE generated. It aims to increase the recycling and/or re-use of electrical and electronic products.

Standard EN 50419 details the marking requirements needed to ensure compliance with the WEEE recast directive. They apply to all manufacturers and producers of electrical and electronic equipment distributed within the EU. The following pictogram is put on both the product and its packaging.



6 BATTERY DIRECTIVE 2006/66/EC

With a few exceptions, all batteries and accumulators, regardless of chemical nature, size or design, fall within the scope of the Battery Directive, 2006/66/EC. Commonly used in children's electronic products, batteries are a popular power source, but failure to dispose of them correctly, and poor recycling practices increase the risk of dangerous chemicals escaping into the environment.

This directive is intended to minimise the negative impacts of batteries and accumulators, and their waste. It prohibits the marketing of batteries containing some hazardous substances, defines measures to establish collection and recycling schemes. It also sets collection and recycling targets. Harmonisation of requirements cross the EU also helps to ensure the smooth functioning of the internal market.

SYMBOLS FOR BATTERIES, ACCUMULATORS AND BATTERY PACKS FOR SEPARATE COLLECTION

The symbol indicating 'separate collection' for all batteries and accumulators is the crossed-out wheeled bin shown below:



STANDARDS AND REGULATIONS APPLICABLE TO ELECTRICAL AND ELECTRONIC TOYS



USA

In the USA, there is a similarly comprehensive array of regulations and standards that electrical and electronic toys must comply with, including:

- 16 CFR 1505, electrical operated products intended for use by children under 12 years, incorporated by reference UL 696 Electric Toys
- ASTM F 963, safety standard for toys
- California Proposition 65
- Consumer Product Safety Improvement Act of 2008 (CPSIA) restriction of chemical substances
- FCC Part 15, Radio Frequency Interference (RFI) & Electromagnetic Compatibility (EMC) for battery operated/electrical toys and children's products (as applicable)
- State and county laws
- US Federal Hazardous Substance Act (FHSA) Requirements, 16 CFR part 1500
- US Public Law 104-142 'Mercury-containing Battery Management Act'

OTHER COUNTRIES

Of course electrical and electronic toys (EE toys) destined for other markets must meet specific national requirements. While many schemes are mandatory some do remain voluntary.

Around the world EE toys are tested to ensure they meet safety and quality standards. In addition, they are tested to ensure compliance with a range of rules, regulations and safety requirements. For further details, download [the overview table 'International requirements for EE toys'](#).

HOW SGS CAN HELP FOR ELECTRICAL AND ELECTRONIC TOY COMPLIANCE?

Legislation for electrical and electronic toys (EE toys), wherever they will be distributed, is complex. To bring products to market you need to know and understand the legislation, requirements and expectations of destination markets. With a global network of offices, laboratories and personnel, SGS has the in-depth knowledge and expertise to smooth your products' route to market. Whether destined for the EU, the USA, Asia, or all three, we can help your toys to achieve compliance and help you to place them on the market.

SGS SERVICES

In addition to the standard tests applied to all toys, our EE toy compliance services include a full suite of safety testing, inspection and certification solutions.

- Electrical Safety Testing - We can examine and test all aspects of a toy, including parameters such as battery compartment security, temperature increases, the potential for short circuits and electric shocks, and the quality of connections, against requirements for the EU, USA, Canada and Australasia, among others.
- Electromagnetic Compatibility (EMC), and Radio Frequency Interference (RFI) testing per standards at global level, i.e. RED (EU), FCC (US), ICES-003 (Canada), CISPR (Australia & New Zealand) and VCCI (Japan)
- Product safety and design evaluation
- Labelling and applicable warning statement(s) review
- Certification
- Inspection
- Training

We have prepared an overview of the requirements for the European and international markets. Download our overview tables:

- [European requirements for EE toys](#)
- [International requirements for EE toys](#)

SGS TESTING FACILITIES

Our global network of labs means we have the expertise and experience to conduct EE toy testing wherever you, or your manufacturing operations, are based.

Europe

- Finland (Helsinki)
- France (Aix en Provence)
- Germany (Taunusstein)
- Spain (Madrid)
- Turkey (Istanbul)

Americas

- USA (Fairfield, NJ ; Suwanee, GA)

Asia

- China (Shanghai, Shenzhen, Qingdao, Ningbo)
- Hong Kong
- Indonesia (Jakarta)
- Taiwan (Taipei)
- India (Manesar)
- Vietnam (HCMC)

WHY SGS?

Independent and innovative, our toy safety experts use state-of-the-art facilities and technology to deliver tailor-made added value services that help improve your business. We offer efficient solutions to help safeguard quality, safety and sustainability.

We provide a single consolidated source for tailored testing, certification, audit, inspection and verification services as well as consulting solutions and technical assistance to reduce risks, improve efficiency and quality.



We strive to deliver outstanding value at every step in your project by providing:

- Rapid turnaround
- Value-based pricing
- Technical assistance
- Key account management

Our expertise in compliance management will help you make the right choices for different national markets.

CONTACT US



www.sgs.com/toys



consumer.products@sgs.com



Consumer Goods & Retail

SGS

WHEN YOU NEED TO BE SURE