




**Smart Solutions that Bring
Safety and Trust to Trade Globally**

Q I M A

- 
- **Definition of electrical safety and why is it necessary?**
 - **European Legislation – RAPEX – Safety Gate**
 - **Which directives regulations are applicable for your product?**
 - **Why is cyber-security becoming more important**
 - **International market access**
 - **What are critical components?**

What is electrical safety testing and why is it necessary?

Definition:

- > To ensure safe operating standards for electrical products
- > Electrical safety compliance testing
 - > Normal condition
 - > Fault condition
 - > Protective earth continuity
 - > Insulation tests
 - > Leakage current, clearance and creepage distance

Why is it necessary?

In a report from US CPSC in May 2017, some of the key findings were:

- > From 2010-2013, about **48 electrocution fatalities** associated with consumer products per year
- > **Consumer product related electrocutions:**
 - > 2010 – 70 cases
 - > 2011 – 40 cases
 - > 2012 – 40 cases
 - > 2013 – 40 cases

The three most common product categories associated with electrocutions over the 4-year period 2010–2013 were:

- > Large Appliance” (**67 deaths**, or 15% of reported consumer product-related electrocutions)
- > Small Appliance” (**61 deaths**, 14%)
- > Power Tool” (**39 deaths**, 9%)



European legislation for electrical consumer products

General Product Safety Directive (GPSD – 2011/95/EC) definition:

- > Only place products which are safe* on the market
- > Inform consumers of any risks associated with the products
- > Make sure any dangerous products present on the market can be traced so they can be removed to avoid any risks for consumers

Several further Regulations and directives are to be considered before placing products on the EU market:

Low Voltage Directive (LVD)

2014/35/EU

(50VAC – 1kVAC/75VDC – 1.5kVDC)

Electromagnetic Compatibility (EMC)

2014/30/EU

Radio Equipment (RED)

2014/53/EU

Restriction of Hazardous Substances

2011/65/EU + (EU) 2015/863

Energy Efficiency

2009/125/EU

Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

EC 1907/2006

Waste – Electrical and electronic products (WEEE)

2012/19/EU

***NOTE:** If an electrical product is not covered from the LVD, it still needs to comply with GPSD.*

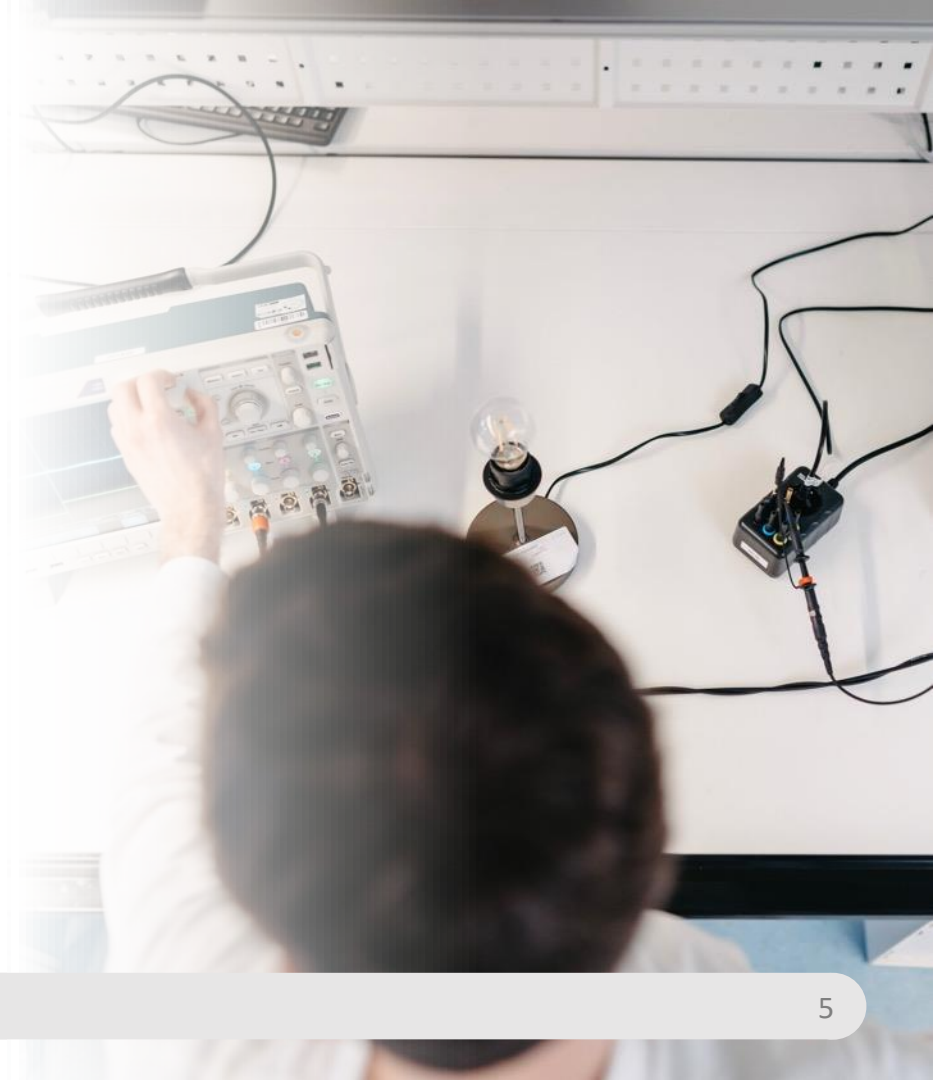
Product recall & RAPEX system

Product recall:

- > If a product is not safe according to GPSD Art. 3, a market surveillance authority could recall those dangerous products

Rapid Exchange of Information System (RAPEX)

- > A rapid alert system in the EU for unsafe consumer products and for consumer protection. It does not cover food, pharmaceutical products and drugs.



Examples for product recalls

Risk type: Injuries

Notifying country: Ireland

Alert number: A12/00992/21

- > The battery and tea light housing are too small
- > Battery overheats while being charged. This can lead to **battery explosion** and the small particles coming out of it can cause injuries to the user
- > The product does not comply with **GPSD** requirement



Examples for Product Recalls

Risk type: Electric shock

Notifying country: Finland

Alert number: A12/00936/22

- Insufficient electrical insulation and **clearance/creepage distances**
- User could receive an electric shock from accessible live parts
- Product does not comply with **LVD** and European standards **EN 62040-1, EN 60950-1, and EN 62368-1**



Examples for Product Recalls

Risk type: Microbiological

Notifying country: Hungary

Alert number: A12/00940/22

- › The non-antibacterial water tank is **not accessible for cleaning**
- › No warning sound to change the water
- › This could lead to the development of molds that can cause **allergic reactions**
- › The product does not comply with **LVD and European standard EN 60335-1**



Cyber security worldwide

Question: Why is Cyber-Security for IoT products so important?

Today, wireless equipment is the target of more than 80% of cybersecurity attacks, compared to wired devices.

Apple CarPlay feature will let you buy gas from dashboard

By Reuters

June 30, 2022 | 12:41pm | Updated

Hack Allows Drone Takeover Via 'ExpressLRS' Protocol



Security issue in smart jacuzzi software exposes user data

BY DUNCAN RILEY

How data on a billion people may have leaked from a Chinese police dashboard

Record-breaking dump thanks to password-less Kibana endpoint?

Laura Dobberstein

Sun 10 Jul 2022 // 16:48 UTC

Cyber security in EU

- European Commission strengthens cybersecurity of wireless devices from 2024
- What kind of products are covered from the new revision?

“The essential requirement set out in Article 3(3), point (d), of Directive 2014/53/EU shall apply to any radio equipment that can communicate itself over the internet, whether it communicates directly or via any other equipment (‘internet-connected radio equipment’)”



Cyber security in EU

What is happening so far in the standardization world for wireless products?

- > The world's first standard to secure consumer IoT devices was published as **EN 303 645**
- > This standard covers basic requirements for Consumer IoT products, such as:
 - > Baseline level of security
 - > Protect against elementary attacks on fundamental design weakness (easily guessable passwords – no universal default passwords)
 - > Keep software updated
 - > Personal data must be secured

- > In April 2022, the ETSI Standards Organization published a further specification **ETSI TS 103 848** for home gateways
- > They also published a technical report **ETSI TR 103 621** to provide guidance to implement the provisions in ETSI EN 303 645.
- > <https://www.etsi.org/committee?id=2051>








International market access

IEC CB Scheme - a global framework that allows manufacturers to enter several member countries:

- > Currently, 54 member bodies listed and accept test reports within each other, which simplifies the global trade market
- > IEC Standards will be used for specific product categories (e.g. IEC 60335-1:2010 – household products)
- > For each IEC standard, additional tests may be needed for each member state



Group / Country	Reference	Last Modified	Differences	TRF Addendum
 Argentina	National Regulatory Requirements			 243 kB
 Australia	AS/NZS 60335.1:2020 +A1:2021	2022-06-02		 170 kB
 Canada	CAN/CSA-C22.2 No. 60335-1-11			 3384 kB

International market access

Based on the test report and CB certificate with national deviations, the manufacturer can apply for a national certificate, if it is mandatory e.g.



Korea
KC Safety Certification



South Africa
NRCS Letter of Authority



Saudi Arabia
SASO – Saber

Critical components list

Critical components and certification process

- > Are the safety-critical components used in the construction of the product?
- > Are the identified components used during a product evaluation, which have an impact on the safe operation of a product?
- > It can be an electrical, mechanical or structural component
- > From an electrical point of view, critical components are mostly, but not limited to dangerous voltage

Examples of critical components:



Critical components list

What are we looking for during the certification process?

- > **CDF – Constructional Data Form**
- > **Contains information about the following data from the used components:**
 - > Item number / part number
 - > Manufacturer / trademark
 - > Type model number
 - > Technical data: rated voltage, current, power, flammability class, frequency
 - > Standard: If third party components are used, the component must comply with designated standard – your supplier must provide the standard number
 - > Marks of Conformity: e.g. UL listed component, VDE or TUV certification mark with certification number

TABLE: Component information					
Object / part No.	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity
Power supply adapter for EU and GS	I-TL Power Manufactory Ltd	ZARD2506 OEU	Input: 100-240 V~ 50/60 Hz, 0,5 A Output: 25 Vdc, 600mA, EU-type	EN 60335-1 EN 61558-2-16 EN 61558-1	TÜV SÜD N8A 083241 0049
Battery pack	Battery Electric Co., Ltd.	T-DL44L	21,6 Vdc, 2000mAh	IEC 62133	DEKRA test report: 6047192.50
PC for battery Pack	Example Electronics Factory	D-2H or D-1R	V-O. 130°C	EN 60335-1 EN 60335-2-2	UL E199900



Thank You!

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