



Global market access Electric Vehicle (EV) Charging Testing and Certification

Version 1 – 2023

bsi.

Inspiring trust for a more resilient world.

Driving confidence in electric vehicle charging



As our priorities are increasingly driven by sustainability, we will drive more electric cars and vehicles. This means demand for electric vehicle charging products is quickly accelerating.

This is great news for reducing vehicle emissions. However, this market growth brings with it challenges, including the need for manufacturers to ensure these new products meet expected levels of quality, safety and reliability.

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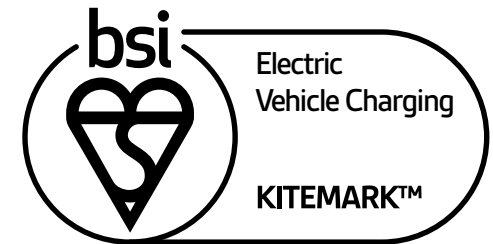
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The BSI Kitemark™ for Electric Vehicle Charging

BSI has developed a Kitemark for Electric Vehicle Charging to address current industry challenges and to help manufacturers and assemblers to produce a better product. As with all Kitemark certifications, the EV and Smart EV Kitemark certifications are type 5 schemes, with robust test and audit criteria, aligned to relevant standards. Recognized to be a high-level certification, Kitemark certification can help you to differentiate your product's quality, safety, reliability, security or sustainability in a competitive global marketplace.



The BSI Kitemark – Good for manufacturers; great for consumers



The BSI Kitemark is helpful for manufacturers looking for market differentiation and wishing to export products globally. We can also assist manufacturers in their product development, where we are able to type test a product to ensure it performs as desired and meets specified criteria.

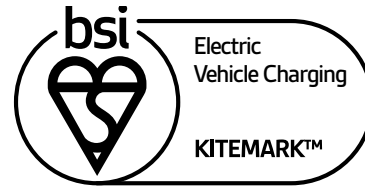
Consumers and end purchasers who will be increasingly required to install charging points over the next few years will welcome the use of the Kitemark brand, demonstrating that the products they install are safe and fit for purpose.

The consumer trust and confidence that the BSI Kitemark imparts on products and services presents a unique competitive advantage. Brands and service providers who achieve Kitemark certification can display the Kitemark on their products, packaging, and other marketing materials, according to the scope of their Kitemark certification.

Kitemark safety, quality and security for your peace of mind. You can have confidence in any EV charger that is BSI Kitemark certified.

Kitemark

BSI's robust EV charger testing program assesses EV charger safety against risk criteria such as electric shock, fire, overheating, safety in operation, and mechanical hazards. In addition, certification confirms that the EV charger has been designed to ensure that water and dust can't get into the product, impacting the durability and lifespan of the product.



The program is inclusive of standards:

BS EN IEC 61851-1:2019 Electric vehicle conductive charging system Part 1: General requirements

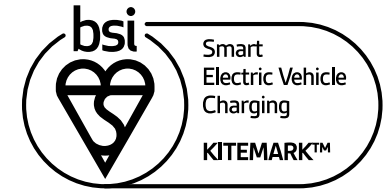
BS EN 62196-1:2014 Plugs, socket-outlets, vehicle connectors and vehicle inlets — Conductive charging of electric vehicles Part 1: General requirements

BS EN 62196-2:2017 Plugs, socket-outlets, vehicle connectors and vehicle inlets — Conductive charging of electric vehicles Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories Electric Vehicle Charging Good for manufacturers, assurance for consumers

BS EN 62196-3:2014 Plugs, socket-outlets, vehicle connectors and vehicle inlets — Conductive charging of electric vehicles Part 3: Dimensional compatibility and interchangeability requirements for d.c. and a.c./d.c. pin and contact-tube vehicle couplers.

Smart Charger Kitemark

The Smart Charger scheme has additional requirements to the product standard. It includes the requirements for the UK Smart Charge Regulations as well as the full ETSI EN 303 645 (cyber security) standard. This additional testing on the smart charger will demonstrate compliance with the UK regulation as well as providing future proofing for the EU's cyber security requirements which are active from 2024 onwards.



We can also test against **Electric vehicle conductive charging system** standards for DC chargers, including **BS EN IEC 61851-25:2021** and **BS EN 61851-23:2014**

Due diligence verification and type testing

Although due diligence is not a type 5 scheme like Kitemark, the Due Diligence Verification scheme from BSI does provide a level of reassurance to companies offering their own or third-party products to the market.

The supply chain for EV chargers represents several challenges particularly in terms of finding and verifying trusted suppliers. Due diligence verification gives a level of assurance and confidence in the supply chain and in the quality of the product supplied. BSI can provide different levels of assurance based on the level of risk perceived from the supplier.

Confidence Level 1

Suitable for when risk is relatively low, this involves a desktop review of relevant declaration of conformities and test report(s) provided by a company or their supplier.

The products aren't physically tested, but samples are disassembled with components compared against test reports to check for discrepancies between build and bill of materials.

Confidence Level 2

In addition to the documentation review described in Confidence Level 1, BSI conducts electrical safety testing against the relevant product standard on a stock product at one of our Centres of Excellence. Samples are checked to confirm if they meet electrical safety criteria.

Confidence Level 3

This includes all steps covered in level 1 and 2, plus factory production surveillance.

Comparison is made between models being manufactured and models and technical data used for certification. In-line and final inspection quality control tests and procedures are also reviewed.

Each level comes with a Due Diligence Verification certificate from BSI.



Type testing

During the development stages of a product's manufacture, BSI can assist with type testing, based on company requirements according to industry standards and/or manufacturer specifications.

A common challenge when developing a new product lies in the uncertainty around whether the current stage already meets the desired outcome or standard requirements. BSI works with clients to provide testing to help them at any stage of the product development journey. This can help save time and costs.

The main advantage of testing while in the process of developing a product, is that it gives the peace of mind that the product is fit for purpose and will perform as intended. This can reduce the cost of re-working the final product, if it should fail when tested. This in turn can speed up the time taken to launch to market, for a more efficient process.



IECEE CB Scheme – placing products on international markets



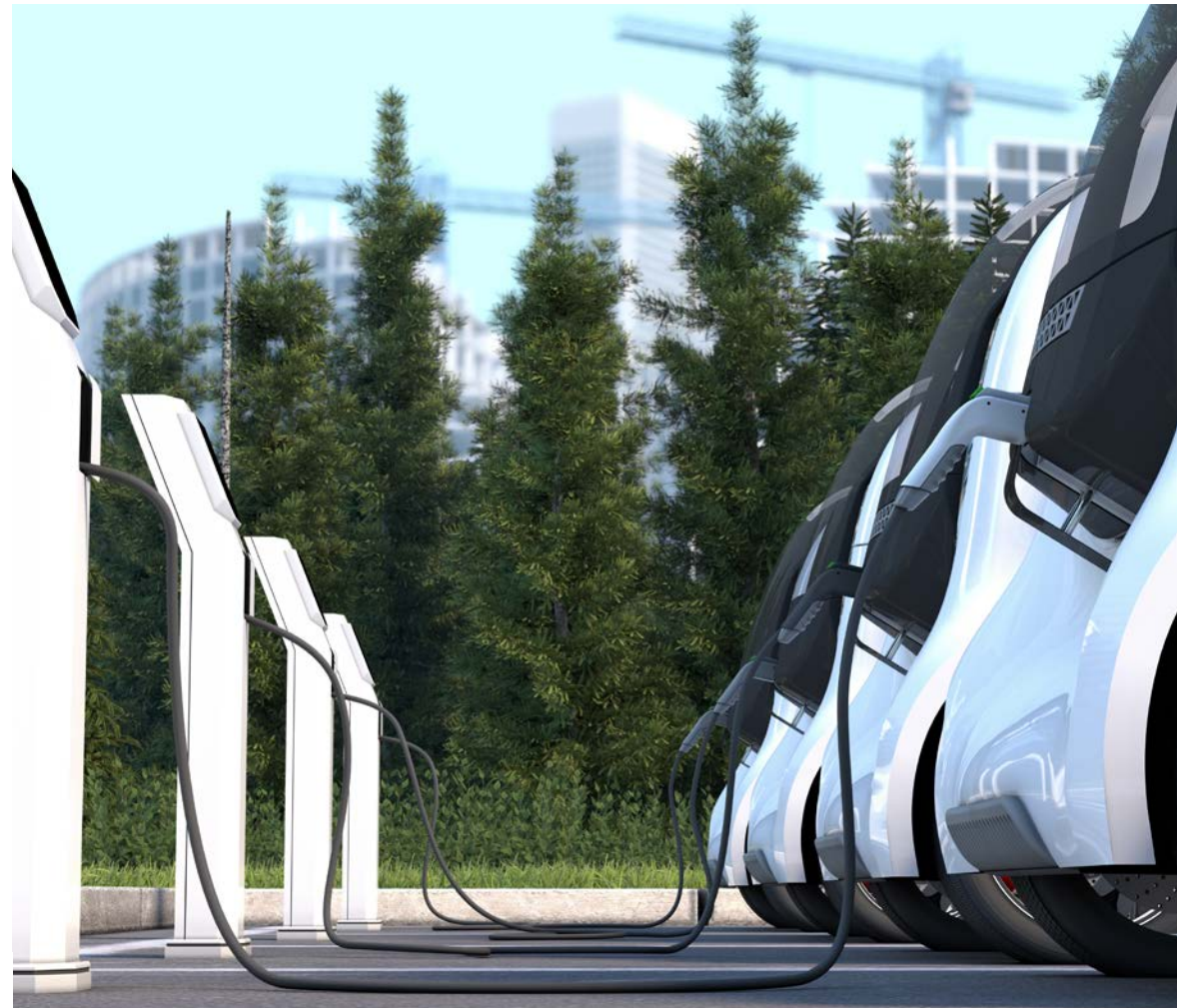
As demand for EV chargers grows worldwide, it is important for manufacturers to be able to access international markets with their products. The IECEE CB scheme offers one route to market, allowing manufacturers to use one test report (CB test report) to place products on to various international markets that form part of a mutual recognition agreement.

A test and certification report from BSI will be recognised by customs and port authorities and by other NCBS in the 50-plus countries that are members of the IEC.

The IECEE CB Scheme is a single standard for electrical products and components. BSI is an IECEE National Certification Body (NCB). Currently, there are over 50 countries within the IECEE CB scheme. For many, this is perceived as a quick route to compliance across numerous countries. However, as much as the CB scheme is recognized by several countries, there are still some local requirements that will need to be met before a product can be legally placed on to a given market. BSI team can help organizations to navigate through the relevant country-specific requirements.

Our scope relating to electrical vehicle charging includes, but is not limited to:

- EV charging
- Electronic controls
- **Switches and automatic controls** for household appliances
- **EMC** (Electro Magnetic Compatibility) of products Audio visual information and communication technology



What is the IECEE CB Scheme?

The Scheme is the IEC's system for conformity testing and certification of electrotechnical equipment and components. The system is based on mutual recognition of CBTCs (Certification Body Test Certificates) by IEC members. The scheme shows that product complies with applicable standards; or local implementations of them. Even though, some countries may have additional local requirements, the scheme is gaining more recognition and some countries that are not members of the IECEE CB scheme accept the test certificate as proof that the product meets the safety requirements of the applicable standard(s) for that region. CBTCs are recognised all over the world. Equally, the scheme is gaining more recognition and some countries that are not members of it accept the test certificate as proof that the product meets the safety requirements of the applicable standard(s) for that region.



Who are the members of IEC accepting the CB scheme?

Here is a list of the IEC members and CB scheme countries

Argentina	Denmark	Mexico	Slovenia
Australia	Finland	Netherlands	South Africa
Austria	France	New Zealand	Spain
Bahrain	Germany	Nigeria	Sweden
Belarus	Greece	Norway	Switzerland
Belgium	Hungary	Pakistan	Thailand
Brazil	India	Poland	Turkey
Bulgaria	Indonesia	Portugal	Ukraine
Canada	Israel	Russian Federation	United Arab Emirates
Chile	Italy	Saudi Arabia	United Kingdom
China	Japan	Serbia Rep. of	United States
Colombia	Kenya	Singapore	Vietnam
Croatia	Korea, Rep. of	Slovakia	
Czech Republic	Malaysia		

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Why BSI?

We are committed to working with you to build a trusted partnership as you grow your business for the long-term. When you need to keep up-to-date and comply with the latest regulatory requirements BSI is ideally placed to support your market access needs. With our global reach combined with our local presence, we are never far away and always on hand to work with you. What's more, our teams of trusted experts have an in-depth knowledge of standards and market access requirements that can enable you to successfully navigate the evolving regulatory landscape so your business remains resilient.

For more than 120 years, the BSI Kitemark has been recognized as a symbol of outstanding quality, safety and trust across a wide range of products and services. It has also given brands and service providers the opportunity to clearly communicate specific claims to customers, in a way that's instantly recognizable, worldwide.

BSI's robust EV charger testing program, like BSI's other Kitemark programs is there to reassure you. It's a promise that the product has been tested to Kitemark safety standards, and has passed this testing criteria in order to achieve the BSI Kitemark for electric vehicle charging.

BSI is ideally placed to work with organizations who need to access multiple markets and we can offer a transfer service with comprehensive support so as to reduce the risk of any disruption to your business.



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