



Certification and testing for electrical and lighting products

Switched on to safety:

Helping to ensure protection,
security and energy efficiency

raising standards worldwide™





Working with BSI

Manufacturers in the electronic and lighting sector face global competition on price, delivery and quality from markets that are increasingly affected by multiple regulatory systems, standards and requirements. Through certification and testing BSI provides manufacturers, specifiers and consumers with real commercial advantages. With BSI's representation on numerous industry and standards committees, we are best placed to help our clients maximise their business potential and demonstrate product quality and safety.

Consumer safety and product liability legislation highlights the importance of product safety to the end user and gives the manufacturer a duty of care. Having a product tested by an accredited independent body such as BSI will help meet obligations for health and safety, corporate manslaughter and demonstrate due diligence.

Unrivalled knowledge and expertise

BSI has unrivalled experience and expertise in the electronic and lighting sector with an enviable reputation, integrity and trust. It is a Notified Body for 15 of the EU Directives, owner and operator of the prestigious Kitemark schemes and has one of the most comprehensive test capabilities available. BSI's laboratory technicians have considerable experience built up over 50 years. With their specialist knowledge of how products and technologies have advanced they ensure that the testing and subsequent BSI test reports continue to carry significant weight around the world.

Supply Chain Management:

BSI's team of experts can help retailers and manufacturers manage their supply chain compliance and risk, helping them reach the market quickly and avoid costly compliance issues or embarrassing product recalls. Through our ability to offer managed compliance, risk management and market access solutions we support electrical and electronics companies throughout the supply chain.

The BSI commitment

Kitemark®

The Kitemark is probably the best known, most trusted and recognised quality certification mark in the UK and has been for many decades.

A survey of consumers* found that an average of 77% of UK adults expected to see a Kitemark on a range of electrical products from plugs and sockets to computers.

93%* of the UK adult population believe that a Kitemark product is safer and 88% believe that it demonstrates that products come from a reputable company. What better advantage could your business and products have? Kitemark helps consumers and specifiers identify and choose quality, reliable products that are safe to use and at the same time it delivers real, tangible benefits to your business.

Kitemark is also accepted in several countries outside the UK, where it held in high regard as a quality mark. This can save considerable time and cost in getting your products to market – ahead of your competitors.



CE marking

As a Notified Body for the Low Voltage Directive (LVD), BSI can offer testing and technical file review services.



The BSI Test Report - product testing:

With a worldwide reputation as an independent test authority, BSI can not only test a wide range of products to international and national standards but can formulate test programmes to meet specific client needs, create test regimes beyond published standards and, with pre-assessment testing, identify problems early in the design process which can save clients considerable time and money. A BSI Test Report is valued and respected around the world helping clients get their products to market quickly and competitively.



Why choose BSI for testing and certification?

Global Market Access: Operating around the world, we can help you enter new markets and develop existing ones for your products and services.

Innovation: BSI has always been at the forefront of our industry, working with a diverse range of companies to help them develop and market compliant products.

Integrity: Our global reputation, the expertise of our people, the prestigious and world famous certification – the Kitemark, Registered Firm Mark, BSI brand reputation, Notified Body status for the UK and most European Directives, ensures BSI's integrity.

Independence: BSI is completely independent. We are not owned by government, industry or shareholders, which means that we are totally impartial.

Managed Compliance: Our capabilities provide you with a one-stop-shop for testing, mandatory or voluntary certification and compliance issues wherever your business is located, reducing time to market, saving money and safeguarding your reputation.

Risk Management: Testing and certification can help you avoid financial risk, prosecution for compensation and damages, and harm to your reputation. The process demonstrates that you have shown the due diligence to ensure that your products meet the relevant criteria for quality and safety.

* GfK NOP Survey

Lighting technology

Identifying and meeting the legislative requirements for lighting products can be a daunting task. However BSI's has over 50 years experience in this sector and a highly expert team to help you.

Our clients recognise this expertise and regularly return to BSI for its technical skill, sound service and speed of delivery – all at a competitive rate. BSI's testing and certification capability in the lighting sector means that we can offer a one-stop shop for electrical safety and photometrics of lighting products.

Whether you want an individual or integrated solution to performance and safety testing, BSI has the breadth of scope to help from lighting products and components to emergency luminaires, street lighting, vehicle mirrors, airfield lighting and portable lamps.

What do we test and why?

- Safety is the first concern and electrical safety tests are carried out on luminaires and their respective control gears as well as lamps to ensure that they do not cause harm, fire or overheating risks when used
- The light output from luminaires is vitally important as it can affect the safety of the location as well as the atmosphere. Retail outlets are particularly keen to make sure that the right ambient light is used in stores to create the optimum conditions for their customers
- Vehicle lights are tested for their ability to distribute light correctly, safely and evenly to ensure that they give off the correct colour and can be seen but do not dazzle other road users.




Lighting technology

Sector Testing Capabilities:

- UKAS accredited photometric, calibration and safety testing facilities carries second generation standard lamps supplied by the National Physical Laboratory to support our calibration service for all types of lighting and colorimetric measuring equipment
- Photometric evaluation – 2 goniophotometers for measuring light output
 - i) for vehicle lights and highway furniture
 - ii) for emergency light fitting and ordinary light type fittings.

Certifications:


- Kitemark - the UK's most trusted and prestigious quality and safety mark
- ENEC - for lighting products is also available from BSI to complement the Kitemark if required or as a stand-alone certification depending on your market requirements
- CB if the product complies with the requirements of the IEC standard, a Certification Board report can be issued. This CB report together with a CB certificate may then be submitted to another National Certification Board who in turn will issue its own national certification mark through far simplified procedures
- BSI is a signatory to the CENELEC Certification Agreement
- Vehicle certification accredited photometric laboratory for over 30 years
- Taiwan vehicle lighting approval
- AMECA accredited for US vehicle lighting.

BS EN 60598 


Luminaire electrical safety

BS EN 13032-1

Light and lighting. Measurement and presentation of photometric data of lamps and luminaires. Measurement and file format

BS EN61347 

Lamp control gear electrical safety

 **BS EN12368**

Road traffic signals

 **BS EN 12966**

Variable message signs

BS EN 12899

Road traffic signs

ECE Regulations for

Road vehicle lighting plus many more

ECE Regulations for

VCA European type approval



Electrical and electronic equipment

BS EN 60950 ✓

Information Technology equipment safety

BS EN 60065 ✓

Audio, video and similar electronic apparatus. Safety requirements

BS EN 61010 ✓

Safety requirements for electrical equipment for measurement, control and laboratory use

BS EN 60601 ✓

Medical electrical equipment safety

BSI can also test to other specifications and manufacturers' individual request

BSI's electronics laboratory testing covers a wide range of electrical and electronic equipment and components to various electrical safety standards and is one of BSI's largest UKAS accredited test laboratories. The electronics laboratory offers third party electrical safety testing on complete products and systems such as:

- Alarm panels
- IT and audio visual equipment (PCs, printers)
- Retail or catalogue kiosks
- Point of sale systems
- Telecommunication terminal equipment
- Banking machines
- Office machines
- Receiving apparatus and amplifiers
- Electrical musical instruments
- Gaming and scoring machines
- Video projectors, audio and video apparatus and disc players
- Power supplies
- Control equipment
- Breath rate monitors
- Exercise systems
- Ventilators
- Medical imaging systems
- Plethysmograph systems
- Medical cosmetic equipment
- Deep muscular stimulation systems
- Breath rate monitors
- Patient vital signs monitoring equipment
- Sterilisation equipment
- General patient monitoring equipment
- Physiotherapy apparatus and foetal monitoring equipment



Electrical and electronic equipment

BSI's expertise in this area is unrivalled – with over 100 man years of experience combined with the technical expertise to deliver a truly outstanding service to customers.

- BSI is a member of the IEC CB certification scheme, which is internationally recognised. The electronics laboratory can test and issue CB reports and certificates to its clients who have products destined for international markets
- IEC, EN and BS electrical safety test standards
- Flexible format testing - clause by clause testing and compile short format, full format and CB certification test reports to meet client's needs
- Pre-assessment option for a select number of clauses/sub-clauses. This enables client's product(s), which are either at prototype stage or ready for testing, to ensure they meet the relevant electrical safety standards criteria, prior to full submission. These assessments are either conducted at the client's site or BSI's laboratories.

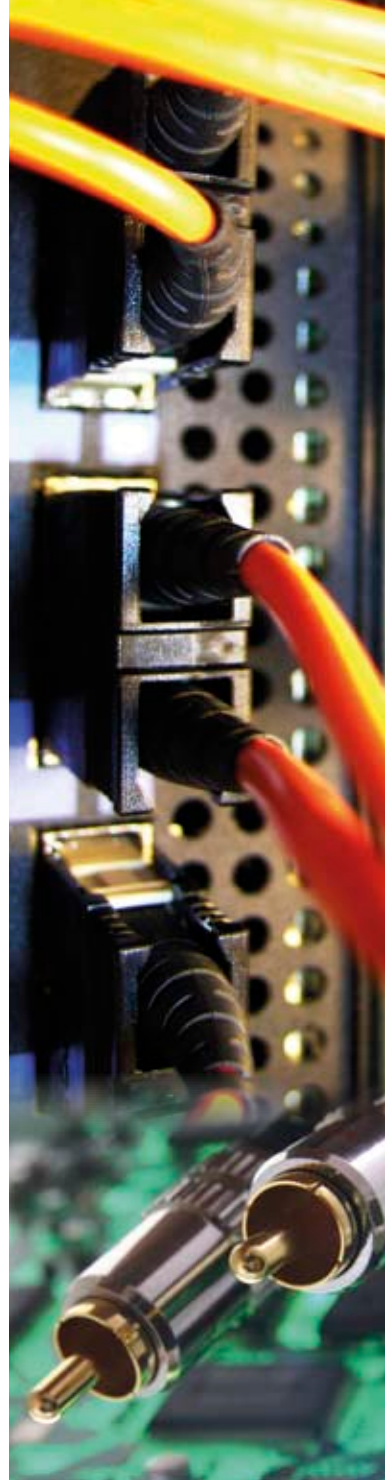
Electrical component testing

TL (Test Leaflet) schemes were designed by and are unique to BSI. They were implemented to allow manufacturers of complex products containing multiple components to have not only the whole product tested but also individual components. TL schemes have been used by BSI and our clients for over 20 years to help manufacturers demonstrate product and component quality and safety.

Successful testing results in a BSI Test Report and Certificate – valued and respected worldwide by our clients who return time and again for their product testing due to the credibility that the BSI test report gives their products.



BSI are also a certification body for the IECQ quality assessment scheme for electronic components.





Electrical and electronic equipment

TL (test leaflet) 5:

A unique BSI certification number is given to the component or component range and a formal test report and certificate is used. The certificate lasts for two years, during which time the scheduled renewal process is managed and owned by BSI. This means that we help manufacturers to maintain continuous certification through renewal and re-test reminders.

Client can amend their certificate at any point during the certified period but must advise BSI prior to any amendment. Depending on the changes made, some further testing may be necessary and in some cases this can be done as a paperwork exercise.

Products tested under TL5 include:

- Isolation capacitors
- Resistors
- Printed circuit board material
- Optocouplers
- Transformers
- Mains switches
- Isolation relays
- Triple insulated wire
- Relays
- Printed circuit boards (PCBs)



TL (test leaflet) 22

The TL 22 scheme is similar to TL 5 but in addition to product testing there is a schedule factory inspection.

The scheme adds authoritative assurance to a manufacturer's quality control through a monitored programme of 100% testing, batch sample testing, periodic validation testing, independent auditing of manufacturers' products and testing programmes and regular re-testing by BSI.

Electrical and electronic equipment

TL 22 is mainly used for isolation capacitors and the scheme is based on two main requirements:

a) Compliance with the requirements listed in Table 2 of IEC 60384: Part 14 in order to satisfy the relevant safety requirements for electronic equipment within the scope of:

- IEC 60065 and BS EN 60065
- IEC 60950 and BS EN 60950

b) The operation of an assessed quality control system by the manufacturer.

Providing that both conditions are met a BSI test report as



well as a Kitemark licence may be issued giving the manufacturer proof of product quality, safety and reliability.

PCB Assembly

The world's Original Equipment Manufacturers (OEMs) are increasingly subcontracting the PCB assembly process to Contract Equipment Manufacturers (CEMs). With no differentiator in a crowded marketplace it is hard for purchasers to know the relevant capabilities offered by CEMs.

The Kitemark scheme has been specifically developed to enable specifiers and purchasers to easily assess a CEM's level of competence. It also ensures that the finished assembly has been built in accordance with the requirements of IPC-A-610.

IPC-A-610 "Acceptability of Electronic Assemblies" is published



by IPC, an established standards developing body. It is a "de facto" world standard for quality assurance and visual acceptance of electronic assemblies and has been adopted by ANSI and the US Dept. of Defense as ANSIIPC-A-610.

IPC-A-610 Kitemark covers revision E of the standard for the visual acceptance of the latest lead-free soldering. Demonstrate your lead-free capabilities with the IPC-A-610 Kitemark.



Controls and Accessories

BS 1363: Part 1-4: 1995

plus Amendments 1, 2 and 3 (excluding non solid pins) plugs, socket outlets, adaptors and fuse connection units

BS 1363: Part 5: 2008

Conversion plugs

BS 5733: 1995

General electrical accessories

BS EN 60112:2003

Tracking index testing

BS EN 60695-2-10-13: 2001

Glow wire

BS EN 61058-1:1992

Switches

BS EN 61058-2-1:1993

Switches

BS EN 61058-2-5:1995

Switches

BS 3676:Part 1:1989

Excluding fluorescent lamp loads and dc ratings. Switches

BS EN 60669-1:2000

Excluding dc rating. Switches

Non-UKAS specifications

BS EN 60320-1

Connectors and inlets

BS EN 60730

Controls Testing to some parts only.

BS 4177

Cooker control units

BS EN 61242

Cable reels

Testing to other specifications is available on request

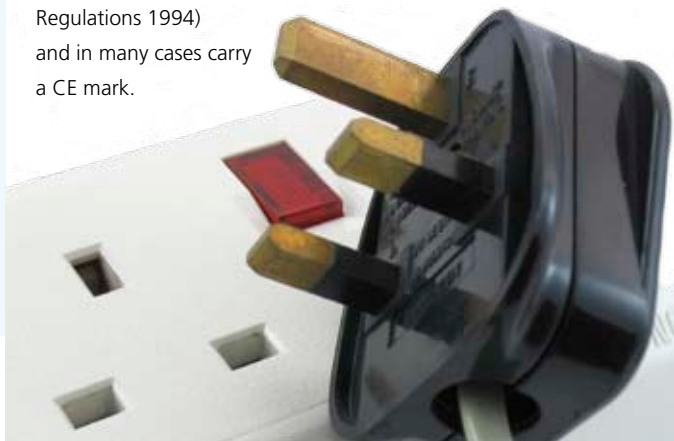
What do we test and why?

Using the extensive capability of this testing facility BSI can test plugs and sockets, adaptors, light switches and tool switches, junction boxes, ceiling roses and cable reels as well as many more wiring accessories and electrical control units. All of our testing is safety testing, conducted to ensure that the products will not cause harm to the user or their surroundings.

Most electrical accessories undergo a range of tests according to the individual standard that applies. However such products as plugs, sockets, switches, cable reels, junction boxes and ceiling roses undergo testing for:

- Provision of earthing
- Thermal endurance
- Protection against electric shock
- Mechanical strength
- Resistance to heat, fire and tracking
- Insulation resistance and electrical strength
- Creepage distances and clearances
- Dimensional compatibility

These products also fall within the scope of the EU Low Voltage Directive (2006/95/EC) and as such must be compliant with the relevant specifications for sale within the UK, be approved in the case of UK plugs (Plug and Socket (Safety) Regulations 1994) and in many cases carry a CE mark.



Medical devices

For over 30 years, BSI has supported the global medical device industry through a comprehensive range of testing and certification services. As a respected, world-class Notified Body BSI is dedicated to providing rigorous regulatory and quality management reviews and product certifications for medical device manufacturers – around the world.

As part of this process, medical electrical equipment can require product testing for which BSI has the expertise within its comprehensive electronics laboratory. BSI's medical device testing specialises in safety and essential performance testing, with test programmes which can be tailored to selected specifications and sub-clauses to meet the individual needs of clients.

Medical devices can cover any equipment used for medical purposes such as heart monitoring machines, x-ray machines and telemetry devices. This type of equipment must not only perform their function reliably, accurately and safely but they must be able to be moved and stored without causing risk, harm or damage. The extensive testing range covers active and non-active devices which ensures that patient or user safety is not compromised by unreliable or faulty equipment.

BSI's partnership approach offers manufacturers and importers the opportunity to discuss all applicable standards, directives for CE marking and product certification Kitemark with our in-house experts relating to the safety requirements for medical laboratory devices.

BSI test reports and certificates are recognised globally as independent proof of compliance with standards and other specifications which meet local regulatory requirements. Test results may form part of the Technical File required for CE marking and 510k reviews for export to the USA.

BSI can help you in the research and development stage of your product to make sure you get speedy and compliant access to global markets.

BS EN 60601 ✓

Medical electrical equipment safety



“BSI has demonstrated a clear understanding of our product testing requirements and a willingness to work closely with us to make sure our needs are met in a timely manner”.

Oberon Eagles – Magstim

Environmental testing

Want or need to know how your product will perform in specific conditions? Do you need to know if it will work in a very cold but wet or hot but dry environment?

We can take your products to their operating limits to see how they will perform once exposed to real life functional extremes.

At BSI our comprehensive, independent, environmental testing services assist product development and verification programmes allowing costly product recalls to be avoided and saving time in the design and production phase.

BSI can perform confidence testing or full qualification approval on manufactured products ranging from single components to full systems. This testing supplies results that will provide your product with the competitive edge – the BSI test report is valued and respected worldwide.

Typical environmental tests include:

- Vibration
- Climatic cycling
- Thermal shock
- Mechanical shock
- Corrosion
- Solar exposure
- IP - Water and dust

All products whether industrial, domestic or military are susceptible to stress inflicted on them by the environment in which they operate. Before placement on the market it is essential you know how your products will perform under these conditions. Field failures and product recalls can have a devastating effect on new product launches.

We can evaluate prototypes, reducing the risk of field failures when the product is launched. We can stimulate the conditions of the product usage and transportation, plus we can provide advice on failure trend analysis to aid product refinement.

Environmental testing can also be included as part of product compliance testing for Kitemark and CE marking.



RoHS - restriction of hazardous substances

RoHS handles the restriction in usage of various hazardous substances such as mercury, lead, cadmium and polybrominated biphenyls used in the manufacture of electrical and electronic equipment. It affects the entire electronic supply chain, applying to all parts, materials, sub-assemblies and components.

What products are affected?

Products that must be compliant under the EU RoHS (2002/95/EC) Directive are:

- Consumer equipment
- Large and small household appliances
- Lighting equipment
- IT and Telecommunications equipment
- Automatic dispensers
- Toy, leisure and sports equipment
- Electrical and electronic tools

RoHS Trusted Kitemark was specifically developed to help companies through the RoHS compliance process as it builds on the IECQ QC080000 standard to provide a robust system recognised by the National Measurement Office, the UK RoHS enforcement agency.

Kitemark certification shows that your RoHS process has been independently tested and audited by BSI and as such builds credibility and reassurance throughout your supply chain - which can in turn open up increased business opportunities for you.





Automotive electrical testing

Where experience counts – BSI has held an unrivalled reputation and experience in the testing of vehicle components. Being independent of government, manufacturers and trade associations means a BSI Test Report is completely impartial and total confidentiality is guaranteed – an important consideration in the competitive field of vehicle component manufacture.

To place vehicle components on the market anywhere in the world they are normally tested and approved by an appropriate authority. Most countries insist on proof of compliance with national or international standards, regulations or directives covering safety and/or environmental performance.

The requirements – approval for the UK and Europe involves testing samples of the product and assessing the manufacturer's quality system to ensure that ongoing production meets the appropriate requirements such as ECE regulations or EU Directives.

Single supplier – fast turnround. Manufacturers wishing to market vehicle lighting, reflectors or mirrors within Europe can take advantage of the streamlined approvals service operated by BSI with the UK Vehicle Certification Agency (VCA). BSI deals direct with the manufacturer throughout the process, with the VCA issuing an internationally accepted certificate. This quick turn-round service can be extended to include type approval for other markets such as the USA, through the Automotive Manufacturers Equipment Compliance Agency (AMECA). In an industry where time is of the essence.

Vehicle Certification Agency approvals for:

- Exterior lighting
- Exterior rear view mirrors
- Retroreflective devices
- Vehicle glass products
- Society of Automotive Engineers and Federal Motor Vehicle Safety Standards approval for components for US market

Cable testing

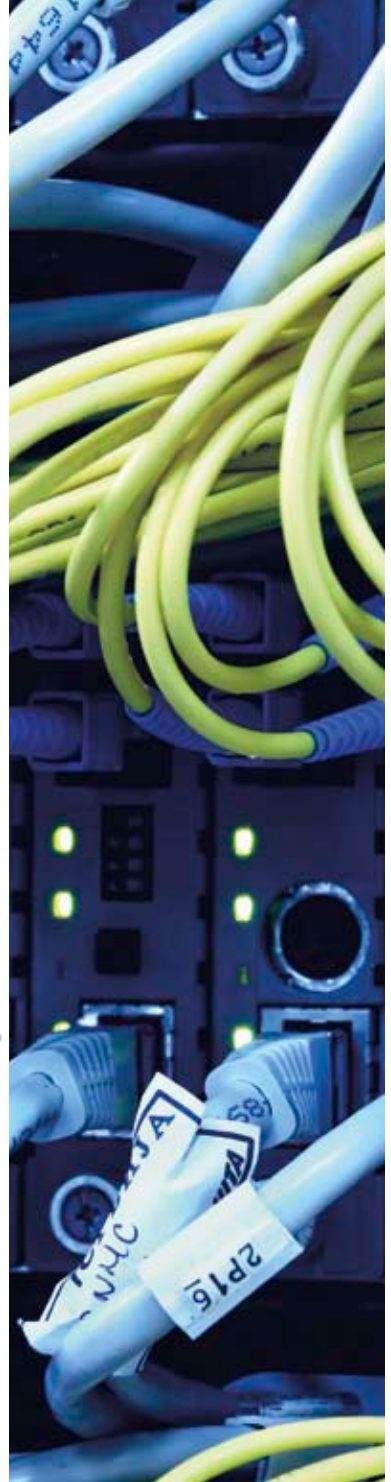
The cables laboratory assesses a variety of cables to over 100 published standards and specifications. These standards have been written by British, European and international standards bodies, however the laboratory also undertakes test commissions based on manufacturers' specifications.

The cables laboratory carries out many different tests from accelerated ageing of cable material to weight testing and is accredited by BASEC (British Approvals Service for Cables) to conduct testing on their behalf as the basis of BASEC certification in the UK.

The items tested by the laboratory include the following:

- Armoured and PVC- insulated for power distribution
- Low smoke and corrosive gas emission cables
- Fibre optic cable
- Lift cable (up to 450/750V)
- Mineral insulated cables
- Insulation tapes
- Vehicle cable
- Flexible supply cord and cable
- Adhesive insulating tape

The laboratory facilities can be hired out for development work and our expert testing staff have many years experience of cable testing to national and international standards and will advise you on legislative requirement for your intended market.



Electrical safety testing

BS EN 60335-1: 2002

Safety of household electrical and appliances for use in the household, shops, light industrial and farms

BSI's electrical appliance testing capability comes from a dedicated laboratory which has built up an international reputation for technical expertise, quality services and in-depth knowledge of electrical safety testing for domestic and some commercial appliances.

As a Certification Body, BSI tests the electrical safety and performance, where applicable, in accordance with the relevant European norms. Among other things, this entails inspection of the protection against accessibility of live parts, temperature under normal and abnormal conditions, mechanical strength and leakage current.

- LVD – Low Voltage Directive 2006/95/EC
- Kitemark



Fire alarm installation

The Chief Fire Officers Association (CFOA) now strongly recommends third party certification by a UKAS accredited organisation for companies who design, install, commission and maintain fire detection and alarms systems. This has applied to ALL fire detection and alarm systems since 1st September 2008.

The SP203 Kitemark scheme recognises that many companies specialise in certain aspects of fire alarm system services and this is reflected in the scheme format. By using a flexible modular structure the Kitemark scheme for fire alarm system installation allows installers to gain certification in all the modules or just those for which an installer is competent.

Kitemark Fire Alarm Systems Installation scheme modules:

- System design
- Installation
- Commissioning and handover
- Maintenance



Emergency lighting installation

Shops, offices and other premises previously excluded from legislation now require the installation of additional emergency lighting to satisfy the Emergency Lighting and the New Fire Safety Legislation – the Regulatory Reform (Fire Safety) Order 2005. Not only must premises contain emergency lighting and escape route signage, the equipment installed must be the correct type, installed in the correct location and satisfy the requirements of BS 5266.

The Kitemark certification scheme for Emergency Lighting installation inspects the quality and safety of work carried out by the business engaged in the design and/or installation and/or inspection, test, certification and/or maintenance of emergency lighting systems according to BS 5266. Once certified you can use the prestigious Kitemark to show your clients and competitors the quality and safety of your installation service.

BS 5839-1:2002+A2:2008

Fire detection and fire alarm systems for buildings. Code of practice for system design, installation, commissioning and maintenance

BS 5839-6:2004

Fire detection and fire alarm systems for buildings. Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings

BS 5839-8: 2008

Fire detection and fire alarm systems for buildings. Code of practice for the design, installation, commissioning and maintenance of voice alarm systems

BS 6266: 2002

Code of practice for fire protection for electronic equipment installations

BS 7273-1: 2006

Code of practice for the operation of fire protection measures. Electrical actuation of gaseous total flooding extinguishing systems

BS 7273-2: 1999

Code of practice for the operation of fire protection measures. Mechanical actuation of gaseous total flooding and local application extinguishing systems

BS 5266 parts 1,7,8 and 10

Emergency Lighting installation



One-stop shop for certification

As well as Kitemark certification did you know that BSI also offers a range of services that can help you business maximise its potential?



Management system certification

– independent audit to prove that an organisation's internal systems are effective and that they comply with the relevant standard. Management systems includes ISO 9001, PAS 2020, PAS99, BS EN 16001, ISO 14001, BS 25999, ISO/IEC 27001 and BS OHSAS 18001.



Training – Training from BSI offers real benefits to your organisation. Our training portfolio is vast, but the following are particularly relevant: Introduction to BS 5266-1, Emergency Lighting for the Fire Safety Order combined with Competent Engineer Certificate and a suite of BS OHSAS 18001 and NEBOSH health and safety courses.



Entropy Software – improve business performance and manage risks with this management system software



BSI Standards – As the world's first national standards organisation, BSI has a globally recognised reputation for independence, integrity and innovation in the production of standards and information products that promote and share best practice

BSI – your one-stop shop for certification, testing training and standards

Why not come and talk to us about to find out how BSI can help your business?

For more information call 08450 765606 or visit www.bsigroup.com

Further information enquiry

Company Name:

Address (Head Office):

Town: County:

Postcode: Country:

Tel: Fax:

Contact Name: **Job Title:**

Email: Direct Line:

I would like more information on (please tick)

- | | | |
|---|---|---|
| <input type="checkbox"/> Kitemark certification | <input type="checkbox"/> CE marking | <input type="checkbox"/> Direct testing |
| <input type="checkbox"/> Management Systems | <input type="checkbox"/> Entropy Software | <input type="checkbox"/> Training |
| <input type="checkbox"/> Standards | | |

What type of product do you manufacture or supply?

- | | | |
|--|--|---|
| <input type="checkbox"/> Lighting technology | <input type="checkbox"/> Electrical/electronic equipment | <input type="checkbox"/> Cabling |
| <input type="checkbox"/> Electronic components | <input type="checkbox"/> Fire alarm installation | <input type="checkbox"/> Vehicle Components |
| <input type="checkbox"/> Domestic appliances | <input type="checkbox"/> Emergency lighting installation | <input type="checkbox"/> Medical Devices |
| <input type="checkbox"/> Other <i>please state</i> | | |

For more detailed information complete and fax back to +44 (0)8450 765603, email your request to testing.services@bsigroup.com or post to: BSI, Kitemark House, Maylands Avenue, Hemel Hempstead, Herts HP2 4SQ



A partnership through compliance

With a wealth of experience in the testing and certification field, BSI is ideally equipped to work in partnership with manufacturers, guiding them through the testing and compliance process, helping businesses to get their products into the marketplace.

Whatever level of service is required, from certification to a published standard to custom product testing or project management for specialist outsourced testing, BSI is here to help every step of the way.

Call +44 (0)8450 765606 today
www.bsigroup.com/certification

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