Partner for Progress

Kiwa Electrical Compliance
Frequently Asked Questions

What is 3rd Party Certification and is Product Testing the right approach for me? We understand these can be difficult concepts for many people. We want to make the premise and process as clear and as transparent as possible, so you can decide if it's the right thing for you and your business.

Of course if your question is not covered below or you would like to talk to one of our experienced team members about your specific requirements; please don't hesitate to get in touch.

General - Frequently Asked Questions

How do I know what standard to test my product to?

All of the harmonised standards are listed in the Official Journal of the European Union (OJEU) that are suitable for demonstrating compliance to the directive. The list is unique for each of the CE marking directives and a copy of the most recent for many of the directives can be found on the European Commission web site.

How long will I have to wait for the test report(s) to be issued?

A full report and test certificate will typically be sent within 4 weeks, subsequent to all the testing being completed. If you require the test report before this time please feel free to contact us.

Why am I required to fill in a Questionnaire?

Completing the questionnaire is very important. It enables us to ensure that your product is being tested to the correct standard, in the applicably operational modes. It also allows us to prepare for any special ancillary test equipment that may be required in order to properly exercise and monitor the unit under test. The questionnaire also allows us to verify the correct amount of test time has been allocated, and most importantly forms the basis of any test reports/certificates that may be issued. If you don't provide a completed questionnaire before the test, this may slow down testing as the information will need to be obtained before test commence.

Do I need to bring or send additional documentation with the product?

Complete copies of the product circuit diagrams are helpful for troubleshooting, an operating manual is also useful to help us know how to operate the equipment. Both of these are also required for carrying out safety testing.

What is UKAS?

UKAS is the United Kingdom Accreditation Service which assesses laboratories against the requirements of the international standard. A laboratory seeking UKAS accreditation has to satisfy UKAS Assessment Managers and independent assessors that it is technically competent and operates a quality system to rigorous international standards.

Following successful assessment, UKAS will issue a schedule of accreditation to the laboratory, which will specify those tests the laboratory has been accredited for, and for which it should issue reports bearing the UKAS testing mark.

What do I do if I've previously had a product tested to an expired version of the standard?

Even though the version of the standard is no longer used for testing new products. There may still be a grace period before the standard is withdrawn. There may also be no need to re-test your product if there have been no technical/test changes or additions. If you would like advice on whether or not a new version of a standard has implications on your product, please contact us and we will be happy to help.

What length do our cables need to be from our equipment to the outside of the chamber?

Cable lengths will need to be 10m for our large chamber (site M) and 5m for our smaller chamber (site B). Chamber connection panel diagrams can be viewed here.

EMC - Frequently Asked Questions

What is the UKCA mark?

The UKCA (UK Conformity Assessment) mark is the new UK product marking that will be required for certain products being placed on the market in Great Britain. The UKCA marking came into effect on 1 January 2021. However, at time of writing this the CE mark is still valid for the UK and there is an ongoing debate as to if/when it will be replaced wit the UKCA mark. Its important to note that the UKCA mark is only recognised in Great Britain and therefore not in Northern Ireland.

UK
CA

What is the CE mark?

The CE (Conformite Europeene) mark is required on all products within the scope of New Approach directives that are placed on the UK market. By affixing the CE mark the manufacturer, its authorized representative, or person placing the product on the market or putting it into service asserts that the item meets all the essential requirements of the relevant European Directive(s).

CE

When is the best time to think about EMC when designing a product?

At the beginning. EMC requirements should be part of the initial design specification of any product. The later you leave it in the design cycle, the harder and more costly it becomes to implement EMC.

Do I need to worry about the layout and routing of my cables?

Generally, yes. Proper layout and routing can contribute a great deal to the good EMC of an installation. If you know that your installers have no control over the cables, then it is necessary to be more careful over the cable specification and/or the interface design.

Do I need a ground plane on my printed circuit board?

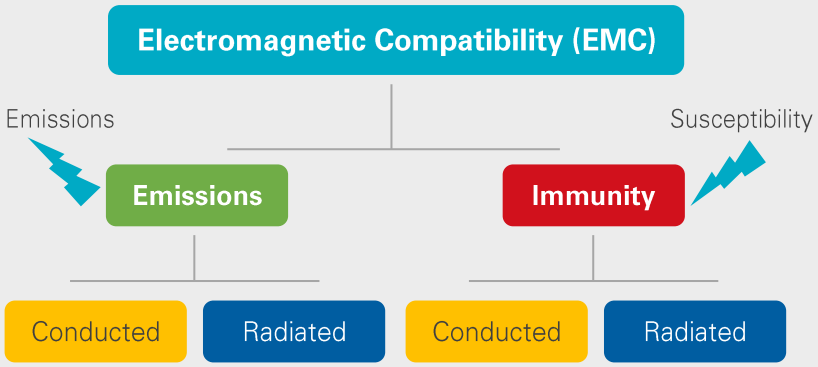
As a general rule, a ground plane is always a good idea. Even for an analogue circuit, it will help improve its immunity to RF. For high-speed digital circuits, it's necessary for correct operation, let alone for EMC. But a ground plane needs to be applied carefully and with some thought as to its purpose, or it won't be effective.

What is pre-compliance testing?

Pre-compliance testing is available to provide an early indication of whether equipment is likely to meet the requirements before full compliance testing is carried out. Whilst not fully conforming to the requirements of the relevant standard, it should still be carried out in a manner which will give meaningful results.

What are the typical EMC tests?

Typical EMC tests include: Radiated Emissions (RE), Radiated Immunity (RI), Conducted Emissions (CE), Conducted Immunity (CI), Transients, ESD and Surges.



What does the declaration of conformity (DoC) need to include?

Before placing the CE mark on a product or safety components the manufacturer must draw up a Declaration of Conformity which needs to include the following:

- A reference to the directive or regulation.
- An identification of the apparatus to which it refers.
- The name and address of the manufacturer and, where applicable, the name and address of their authorised representative.
- A dated reference to the specifications under which conformity is declared.
- Date of the declaration.
- Identity and signature of the person empowered to bind the manufacture or their authorised representative. This documentation shall be retained and kept available for up to ten years from the time of last manufacture of the machinery.
- It should be noted that for an EU declaration for CE an EU responsible party must be listed, for a UKCA UK declaration a UK responsible party must be listed (these must both reside in the applicable territory)

What is the Technical File?

A Technical Construction File is the documentation which demonstrates that a product or product family meets the protection requirements of the EMC Directive, as a general guide the following items should be included:

- Description of the apparatus, usually accompanied by block diagram
- Wiring and circuit diagrams
- General Arrangement drawing
- List of standards applied
- Records of assessment to standards
- Description of control philosophy/logic
- Datasheets for critical sub-assemblies
- Part list
- Copies of any markings and labels
- Copy of instructions (user, maintenance, installation)
- Test reports
- Quality control & commissioning procedures
- Declaration of Conformity The technical documentation shall be retained and kept available for up to ten years from the time of last manufacture of the machinery

What is a Fixed Installation?

Fixed installation, is a particular combination of several types of apparatus and, where applicable, other devices, which are assembled, installed and intended to be used permanently at a predefined location.

Radio - Frequently Asked Questions

What configuration does my product need to be in, for RED testing?

We need to be able to control or set the RF frequency/channel of operation over the entire frequency of your product, to allow testing on the relevant channel or channels as required by the product standard. For certain tests and to allow faster test lines, a method of getting the transmitter into a constant RF transmission state, with and without modulation.

How many units do I need to provide for test?

Testing can be performed on one unit however, usually different modes are required for certain tests, i.e. ('const Tx' with & without modulation, receive mode) and if not easily configured more than one test sample would be advantageous.

How do I need to control my unit to allow all the radio parameters to be tested as required?

Certain radio tests require constant transmission with and without modulation and require a number of frequency channels to be tested (if applicable), different power levels

are also sometimes required for testing if user adjustable. Therefore software control and or hardware modifications of the devices under test is a requirement.

What techniques can be used to improve adjacent channel rejection of radio receivers?

A range of techniques are possible; bandwidth-limiting filters at the antenna input are the most common, but a receiver's performance can also be improved by designing it for a wide dynamic range, so that out-of-band high level signals don't cause non-linear operation. Low-cost designs are naturally the hardest to optimise.

Safety - Frequently Asked Questions

What is the Low Voltage Directive - LVD?

The Low Voltage Directive, or LVD and was introduced by the European Union in an attempt to create a single market in European (very much like the EMC Directive). It lists a set of safety requirements for electrical products sold in the EU. It applies to most electrical products and is not limited to electrical safety but also covers mechanical, thermal, fire, energy, chemical & radiation hazards.

The Low Voltage Directive is not a 'standard' in the traditional sense but it's a set of safety objectives that all electrical products should comply with. The main theme of all the safety objectives is that the equipment should not cause any physical harm or any other kind of damage to any person, animal or building.

There are several product specific and generic standards that are listed in the Official Journal (OJ) of the European Union. Compliance with these standards leads to the presumption of conformity with the Low Voltage Directive.

What does LVD apply to?

All electrical products that are in the range 50V – 1000V (AC) and 75V – 1500V (DC). This applies to voltages at the input/output – not to the ones that are internal to the equipment. All telecommunications (radio + wireless) products must be tested to LVD regardless of their input/output voltage rating.

Power adaptor/PSU/Transformer pre-approved and the rest is all low voltage, do I need safety testing?

Yes, CE + CE does not necessarily equal CE. Yes, the power supply / transformer is tested in its own right but the PSU put together with the unit forms a new system. The way the PSU is loaded in end application is not necessarily the way it is loaded during testing; therefore further evaluation of the whole unit put together is necessary.

Battery powered product does LVD apply?

Yes, LVD does apply as long as the input/output voltages of the unit are within the range 75V – 1000V (DC). All Radio & telecommunications products falling under the RED need to comply with LVD requirements irrespective of their voltage. If product is below 75V (DC) yes LVD does not apply, however the product still needs to be safe and can be tested under the General Product Safety directive.

For example most digital cameras run at below 75V (DC) but most manufacturers still CE mark them with respect to the Low Voltage Directive. This is because they are supplied with a mains powered battery charger, therefore as a system the unit falls under the limits of the LVD directive.

Battery powered product supplied with previously approved battery charger. Do we need safety testing?

Yes, again CE + CE does not equal CE. The system as a whole needs to be tested to ensure the requirements of the LVD directive are still met.

We have not worried about third party safety testing, we do our own self certification, why should we bother with third party testing?

Third party certification / testing adds an element of quality and confidence in your product. Third party test laboratories are usually quite experienced at testing systems and can be quite helpful in ensuring you comply with the safety regulations of target market.

Most manufacturers are not familiar with the regulations and changing standards with regard to safety, therefore use of a test laboratory can save valuable time & money.

Third party evaluation also gives you a marketing edge as you could use evidence of testing to promote your product (shows that you product is of a high quality). Moreover in case of a challenge the presence of a third party assessment report can work in your favour.

FCC - Frequently Asked Questions

Who are the FCC?

An agency of the U.S Federal Government responsible for the management of the radio spectrum in the United States of America.

What does the FCC do?

The FCC protects against "radio and broadcast interference", by enforcing standards of broadcast, and by regulating electromagnetic noise sources.

When does FCC apply?

FCC regulations apply to electrical and electronic products that may produce radio frequency pollution. Two main types of products covered are "Intentional Radiators" and "Unintentional Radiators". An Intentional Radiator is a device that broadcasts radio energy to perform its function. An Unintentional Radiator is an electronic device that produces radio signals that are broadcast through space or conducted along power/signal lines.

Are there any equipment exemptions?

Most common exemptions: Digital devices oscillating below 1.705 MHz that do not connect to the power grid, even indirectly. To be exempt, devices also cannot connect for the purpose of recharging batteries.

Digital devices that use less than 6 billionths of a watt (6 nW) of electrical power. Devices only used in vehicles. Specialized medical, electrical utility or commercial test and measurement devices. Appliances (white goods), or devices used exclusively in appliances. Non-digital simple passive devices.

Why do I have to comply?

The FCC requires that any product that is covered by FCC regulations undergo "equipment authorization procedure". It is illegal to import, sell, or lease covered equipment that has not undergone the required equipment authorization procedure.

Additionally, operators must cease to use equipment that causes interference upon notification by the FCC. The FCC does have the ability to levy fines, impose seizures and even jail offenders. The FCC frequently targets end-users with fines to bring pressure to bear on retailers.

My unit/product is DC powered do I have to test DC conducted emissions?

If the unit is battery powered only then, no. If the unit is supplied with an AC/DC power supply brick then AC conducted emissions are tested. If the unit is not supplied with an AC/DC supply then it is reasonable to test AC conducted emissions with a representative (off the shelf) supply.

Cable - Frequently Asked Questions

Do I send both contracts to KEC?

Yes, Kiwa Electrical Compliance will sign and return the contract between us and you, then forward the CAI contract to the CAI.

How long does it take to test my cable?

It generally takes 2 days to test a cable, and we normally do this within 2 weeks of the cable sample and all relevant paperwork arriving here.

Can I test a different type of cable?

We do have the ability to test other types of cable, please feel free to contact us particularly with details of the cable to be tested and tests required.

VCA - Frequently Asked Questions

What does ESA stand for?

ESA stands for Electrical Sub Assembly.

What is a CAN-bus?

CAN-bus (Controller Area Network) is a vehicle bus standard designed to allow microcontrollers and devices to communicate with each other within a vehicle without a host computer.

A modern vehicle may have as many as 70 electronic control units (ECU) for various subsystems. Typically the biggest processor is the engine control unit, which is also referred to as "ECU" in the context of vehicles; others are used for transmission, airbags, antilock braking, cruise control, audio systems, windows, doors, mirror adjustment, etc. Some of these form independent subsystems, but communications among others are essential. The CAN bus may be used in vehicles to connect engine control unit and transmission, or (on a different bus) to connect the door locks, climate control, seat control, etc.

What is CoP?

Conformity of Production (CoP) is a means of evidencing the ability to produce a series of products that exactly match the specification, performance and marking requirements outlined in the type approval documentation. Whether you are a manufacturer, or the agent applying for approvals on behalf of a manufacturer, and whatever your product is, suitable CoP arrangements must be made. More details on the requirements can be found here.

Of course if your question is not covered or you would like to talk to one of our experienced team members about your specific requirements; please don't hesitate to get in touch.

Visit www.kiwa.co.uk to understand more about our comprehensive range of services, or get in touch by calling **+44 (0)1277 352219 / (0)1495 229219** or email uk.electrical@kiwa.com

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