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Dear Readers:

Welcome to the seventh edition of EMC Talk, the EMC Newsletter from TÜV SÜD Product Service. We continue to communicate important information and news, keeping you aware of changes in EMC standards and the EMC regulatory environment as well as in our activities.

We trust you will enjoy this seventh issue. If you have any questions on any of the related topics please contact us, and we will be happy to help.

Jean-Louis Evans - Managing Director

Does your DoC (Declaration of Conformity) need updating?

If you are a manufacturer or importer of IT type products you need to check your DoC is up to date.

From 1st October this year the 2006 + amendment 1 2007 version of EN 55022 (Emission standard for IT Products) will become the oldest available version of the standard still published in the EU Official Journal (OJ), which can be used for presumption of conformity to the EMC Directive.

To show presumption of conformity to the EMC Directive manufacturers will need to ensure their products meet the requirements of at least, this version of the standard.



The following standards cease to give a presumption of conformity from 1st October 2011:

- EN 55022:1998
- EN 55022:1998 + A1:2000
- EN 55022:1998 + A2:2003
- EN 55022:1998 + A1:2000 + A2:2003

This means that if you have had your equipment tested to any of the four standards mentioned above, you will need to update your existing Declaration of Conformity (if you are still placing your product on the EU market) and you may need to re-test your equipment.

The main difference between the superseded version and the 2007 version is that emission testing may now be up to 6GHz. The decision making process is as per the table on the right.

Highest frequency intentionally generated or used (MHz) by the product	Radiated Emissions Measurement will need to be performed up to...
<108	1000 MHz
<108 - 500	2000 MHz
<500 - 1000	5 GHz
<1000	5 times the highest internally generated frequency or 6 GHz (whichever is less)

Please note that EN 55022: 2010 is the latest listed version in the Official Journal, and should be used when updating your DoC to provide maximum product longevity.

TÜV SÜD Product Service can offer advice and testing if required. For more information please contact our experts:

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MACHINE BUILDERS CAN'T IGNORE EMC!

Electromagnetic compatibility (EMC) is an issue that many machine builders find complex and confusing, but that doesn't mean that they can ignore their legal obligation to ensure their products meet the requirements of the EMC Directive. Paul Laidler of Laidler Associates, part of the machinery division of TÜV SÜD Product Service, explains.

There can be no doubt about the need for electromagnetic compatibility (EMC). Who, for example, has not experienced a landline phone conversation that's been interrupted by chirps from a nearby mobile phone? In an ideal world, with total control of EMC, things like this would never happen. No one worries too much about the phone chirps, however, as they are nothing more than an annoyance. But when it comes to EMC and machines, the situation is very different.

If, for example, the control system of a machine is disturbed by electromagnetic interference it may randomly malfunction, creating a potentially dangerous situation. Conversely, if the electrical and electronic systems fitted to a machine generate a high level of interference, they may cause other nearby equipment to malfunction. It is to help guard against situations like these that the EMC Directive, 2004/108/EC, was put in place. In the UK, this directive is implemented by the Electromagnetic Compatibility (EMC) Regulations 2006.

To understand the implications of these regulations for machine builders, a good starting point is to look at the "Guide to the Electromagnetic Compatibility (EMC) Regulations 2006", which can be downloaded free of charge from the Department for Business Innovation and Skills website – www.bis.gov.uk.

Section 2 of this guide, which covers essential requirements, includes statements that can be summarised as saying that equipment must be designed and manufactured so that the electromagnetic disturbance it creates is not excessive, and so that it has a reasonable level of immunity to electromagnetic disturbances. In addition, fixed installations – which includes the majority of machines – must be installed applying good engineering practices and respecting the intended use of its components. Then comes a very interesting statement, "There are no conformity assessment or CE marking requirements for fixed installations". This statement is taken directly from the guide, but does it really mean that builders of machines categorised as fixed installations have no need to concern themselves with the EMC performance of their products? Indeed it does not. Note that this same section of the guide contains the words, "the essential requirements for all equipment are set out in Regulation 4". (My italics). In other words, machines that are regarded as fixed installations must still be designed and manufactured so that they meet the essential requirements – the only relaxation of the rules relates to assessment and marking, not to performance!

But how can machine builders be sure that their products really do have satisfactory EMC performance? It's very tempting to think that the answer is to use only components that are themselves compliant with the EMC Regulations. Surely, if all of the components used in a machine satisfy the regulations, it's reasonable to conclude that the whole machine must also meet the regulations?

Unfortunately, that's not how it works and it's relatively easy to see why. Consider, for example, a variable speed drive that, for the sake of argument, produces a level of electromagnetic interference about half of that acceptable under the regulations. Clearly, there's no problem in stating that this drive complies with the regulations.

Now put four of those drives on a machine. Is it reasonable to assume that the machine complies with the regulations, simply because each of the drives is compliant? Probably not. The machine may be compliant, especially if measures to control EMC have been incorporated in its design, but the point is that it can't be assumed to be compliant.

In fact, since there is no proven way of calculating or modelling the EMC performance of a machine, it is the opinion of Laidler Associates that the only way compliance can be verified is by testing. This opinion may be considered by some as rather controversial, but when the Health & Safety Executive was asked to comment on this issue, it provided the following statement:

"Section 6 of the Health & Safety at Work Act (HSW) places a duty on manufacturers to carry out or arrange for the carrying out of such testing and examination as may be necessary to ensure that the article is so designed and constructed that it will, as far as is reasonably practicable, be safe and without risks to health. In the context of EMC, in most applications it is the electromagnetic immunity of equipment that is of interest in relation to Section 6 of the HSW. If it is reasonably practicable to carry out testing for immunity to electromagnetic disturbances, the HSW requires this to be carried out".



This statement leaves no room for doubt about the necessity for EMC testing of machines in the vast majority of cases – there is simply no shortcut to achieving compliance with the EMC Regulations. Unfortunately, there is also no doubt that EMC testing can be complex and time consuming, especially for the majority of machine builders that lack in-house expertise in this specialist area.

For this reason, many machine builders find it preferable to work with a specialist consultant like Laidler Associates on matters relating to EMC. Provided that they are involved with a project at an early enough stage, a consultant of this type can provide design guidance that will help to optimise the EMC performance of the machine, as well as giving invaluable advice on compliance and testing. The consultant's services may also include arranging for and supervising the tests.

The fee charged by a consultant for providing these services is usually relatively modest, and is in almost every case far less than the money the machine builder would have spent ensuring EMC compliance without calling on expert help. In addition, working with a consultant provides the peace of mind and assurance of knowing that the compliance process has been properly completed and that nothing has been missed.

Few would deny that meeting the EMC requirements in relation to machines can be a daunting process, but ignoring those requirements is not an acceptable solution. Fortunately, help is at hand in the form of our experienced EMC consultants who can provide all of the help and support machine builders need to be sure that their products always deliver impeccable EMC performance.

Take your learning to a higher level in 2012



TÜV SÜD Product Service is providing a range of specialist training courses throughout 2012, including:

- UK EMC Defence Standard 59-411
- Design for EMC
- Requirements for Apparatus and Fixed Installations under the Electromagnetic Compatibility (EMC) Directive 2004/108/EC
- EMC Compliance of Military and Avionics Equipment

book now

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EMC UK 2011

TÜV SÜD Product Service will once again be exhibiting at this year's EMC UK show taking place at Newbury Racecourse on the 10th and 11th October.

From its conception 8 years ago, EMCUK has firmly established itself as the prime event for the EMC industry and should definitely not be missed. Business action shop... not talking shop. That is what you get when an event is for the Industry, by the Industry. With 50 exhibitors, Technical Forums and Practical Training Sessions, a networking and information providing occasion second to none.

Our experts will be presenting at the Technical Forum, so book your place now!

Tuesday 11th October - 11:00am

EMC & Functional Safety in Defence Standards - Presented by Pete Dorey

Wednesday 12th October - 9:00am

EMC & Fixed Installation in Railway Systems - Presented by Damon High

We want to meet YOU, at the show so please join us at Stand 37, where you will be able to have a FREE consultation with one of our experts.

If you are interested in booking a time, please contact Irena at IDimitrova@tuvps.co.uk to make an appointment.

