

# Mandatory EMC requirements for fixed installations under the new EMC Directive 2004/108/EC

By Ken Webb, TÜV Product Service Ltd

Many have viewed the new EU EMC Directive as a bit of a damp squib, if anything lightening the burden of control over the risks posed by EMC (Electromagnetic Compatibility). This is somewhat of a paradox just at a time when the world is seeing a proliferation of wireless electrical and electronic devices and when the increasing use of digital technology in safety critical applications could lead to more devices having their performance impaired by electro-magnetic interference.

In one respect, however, the new EU EMC Directive has expanded its scope by including fixed installations within the definition of equipment covered specifically by EMC legislation. For many years, fixed installations have been subject to formal risk assessments when their operation has been safety critical. These assessments would require a holistic investigation of all the risks pertaining to installed apparatus, and would be particularly common in situations such as Railway signalling, airports and hospitals for example, where safety concerns are to the fore and equipment needs to function in quite hostile EMC environments. Formal safety assessments are performed, and typically checked by an external safety assessor. EMC is only one of the risk factors that need to be covered, but until now, EMC assessment at the fixed installation level has not been supported by any formal legislation at EU Directive level.

This is the first in a series of articles looking in more detail at the fixed installations provisions of the new EMC Directive. In this article we will start with an overview of the legislation as it applies to fixed installations and the apparatus contained within it.

In part 2, we'll be discussing what constitutes a fixed installation. A Fixed Installation is defined by the Directive as "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". Railway stations, airport terminal, hospitals and a whole range of industrial plants and commercial sites would appear to fit this definition. However, does this definition apply to retail outlets, your local "Queen Vic" and our homes? We'll tackle this question in part 2.

In part 3, we will address the responsibilities and role of the responsible person. The latest BERR Guide to the EMC Regulations, URN 08/1192, provides some very useful guidance, but there still remains a high degree of uncertainty. In situations where there are many parties involved e.g. owner, operator and manufacturer, the lines of responsibilities may not be very clear.

The final part, Part 4, deals with the content and scope of documentation held by the responsible person, which enables

them to demonstrate the application of good engineering practices. There is very little guidance on this at the moment and, not, surprisingly, some industries are expressing concern.

## Overview of the fixed installation provisions in the EMC Directive

The EMC Directive 2004/108/EC applies to equipment defined as "apparatus" or "fixed installations". The provisions for apparatus are not discussed in detail in this article. However, certain aspects about their incorporation into fixed installations are discussed later on below.

The provisions for fixed installations are set out in terms of meeting two sets of requirements:

1. They must meet the essential requirements for emissions and immunity; these also apply to apparatus
2. They must also meet specific essential requirements for fixed installations. These include, ensuring the essential requirements for emissions and immunity are met by applying good installation practices during installation and, taking into account the intended use of its components.

Furthermore, the good engineering practices adopted shall be documented and held by a responsible person for inspection purposes for as long as the fixed installation is in operation.

In many respects, the Directive has formalized the processes and procedures that many industry and owners, operators of fixed installations have been applying for years. Now we have legislation in place - effective from 20<sup>th</sup> July 2007 for new fixed installations after that date or the modifications to existing installations after that date - that places a legal requirement on owners and operators of fixed installations to identify who is responsible for ensuring EMC compliance and maintaining relevant documentation.

It is worth pointing out that the Directive's requirements for fixed installations are aimed at controlling and minimizing interference *between* fixed installations not within fixed installations. However, many of the measures adopted to control interference between fixed installations will also improve EMC between apparatus within the fixed installation itself.



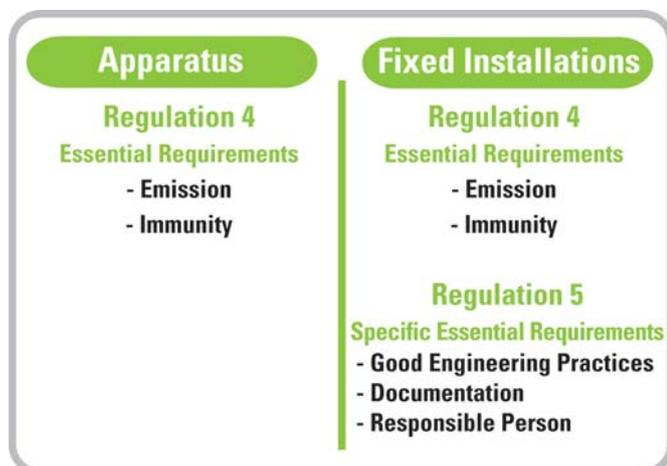
**Figure 1 Controlling interference between fixed installations**

### Apparatus installed within fixed installations

The majority of apparatus installed within a fixed installation will be commercially available and procured off the shelf. These will carry CE marking and the supplier's Declaration of Conformity should state which Directives and standards have been applied. Accompanying User and/or Installation Manuals should specify any particular installation requirements for ensuring EMC. For example, the use of screened cables or guidance on cable segregation may be provided.

Some fixed installations contain a number of bespoke or custom built items of apparatus. These will typically be designed and manufactured by the end user, or another party, for use at a specific installation. This apparatus is not intended to be placed on the market. Article 13 (1) of 2004/108/EC describes the provisions for apparatus which is intended for incorporation into a given fixed installation and is otherwise not commercially available. This apparatus (called 'certain apparatus' in the UK Regulations) includes bespoke and 'one-off' items produced for a single or a number of fixed installations. This apparatus does not require CE marking or a Declaration of Conformity, but must be accompanied by certain information specific for the intended fixed installation.

The figure below summarises the marking, documentation and information requirements for apparatus.



**Figure 2 Summary of essential and specific essential requirements**

Therefore, the responsible person for a specific fixed installation may need to obtain documents and information in relation to two types of apparatus:

- Firstly, apparatus that is 'placed on the market' by a supplier that is commercially available to general end-user. These must comply with all of the 2004/108's provisions for apparatus, have an EC declaration of conformity and carry the CE marking, even when purchased for use in a fixed installation.

**NB** Apparatus which has been declared compliant with the 'old' EMC Directive 89/336/EEC and, has a Declaration of Conformity issued prior to 20<sup>th</sup> July 2007, may still be placed on the EU market until 20<sup>th</sup> July 2009. However 89/336/EEC does not require the same level of information to be supplied as 2004/108/EC and many suppliers might not provide the instructions that are needed to help achieve EMC compliance for a fixed installation.

- Secondly, apparatus intended for incorporation into a given Fixed Installation, which is not otherwise commercially available. The UK Regulations defines these as 'Certain Apparatus' and, when supplied, they must be accompanied by certain information.

These new requirements formalize EMC compliance of fixed installations and will form an important part of an overall safety case or assurance evidence file as described earlier for Railways, airports and other safety critical applications. However, the greatest change to current practice may come in the application of the Directive's fixed installation requirements to locations such as Retail outlets. With many outlets sited in a variety of different locations, responsibility for EMC compliance will have to be addressed at a corporate level. And there is more relevant legislation to come in the form of the EU Physical Agents Directive (Electromagnetic Fields), which, when transposed into UK law, will introduce measures to protect workers from the health and safety risks associated with electromagnetic fields in the form of maximum exposure limits.

**For further information contact:**

**TUV Product Service Limited, Octagon House, Concorde Way, Segensworth North, Fareham, PO15 5RH**  
**Tel: 01489 558100**  
**Email: info@tuvps.co.uk**