



Another EMC resource
from EMC Standards

Revisiting the new EMC rules

Helping you solve your EMC problems

Revisiting the new EMC rules

Panel and system builders, and the new EMC regulations.
Keith Armstrong continues the theme set in our March column

Eurlng Keith Armstrong C.Eng MIET

keith.armstrong@cherryclough.com

Originally published in PSB Magazine, May 2007, <http://www.psbonthenet.net>

With a few laudable exceptions, panel and system builders generally applied the “CE + CE = CE” approach when complying with the EMC Directive (89/336/EEC) and its UK EMC Regulations (SI No.2372, 1992). They make sure that everything they purchase is CE marked, and assume that this means the final assembly will comply without any more EMC work.

Unfortunately, there was never any legal or technical basis for this approach, and most panels or systems constructed in that way failed EMC tests – if they were tested. But the Regulations were very vague about bespoke equipment, and there was very little enforcement, so most panel and system builders never tested their products.

All this changes with the 2nd Edition of the EMC Directive, 2004/108/EC, and the 2006 EMC Regulations, SI No. 3418 2006, which implement it in the UK, which came into force on 20th July 2007. These have *specific* requirements for the compliance of ‘fixed installations’ – the end-users of our panels and systems – shown in Figure 1.

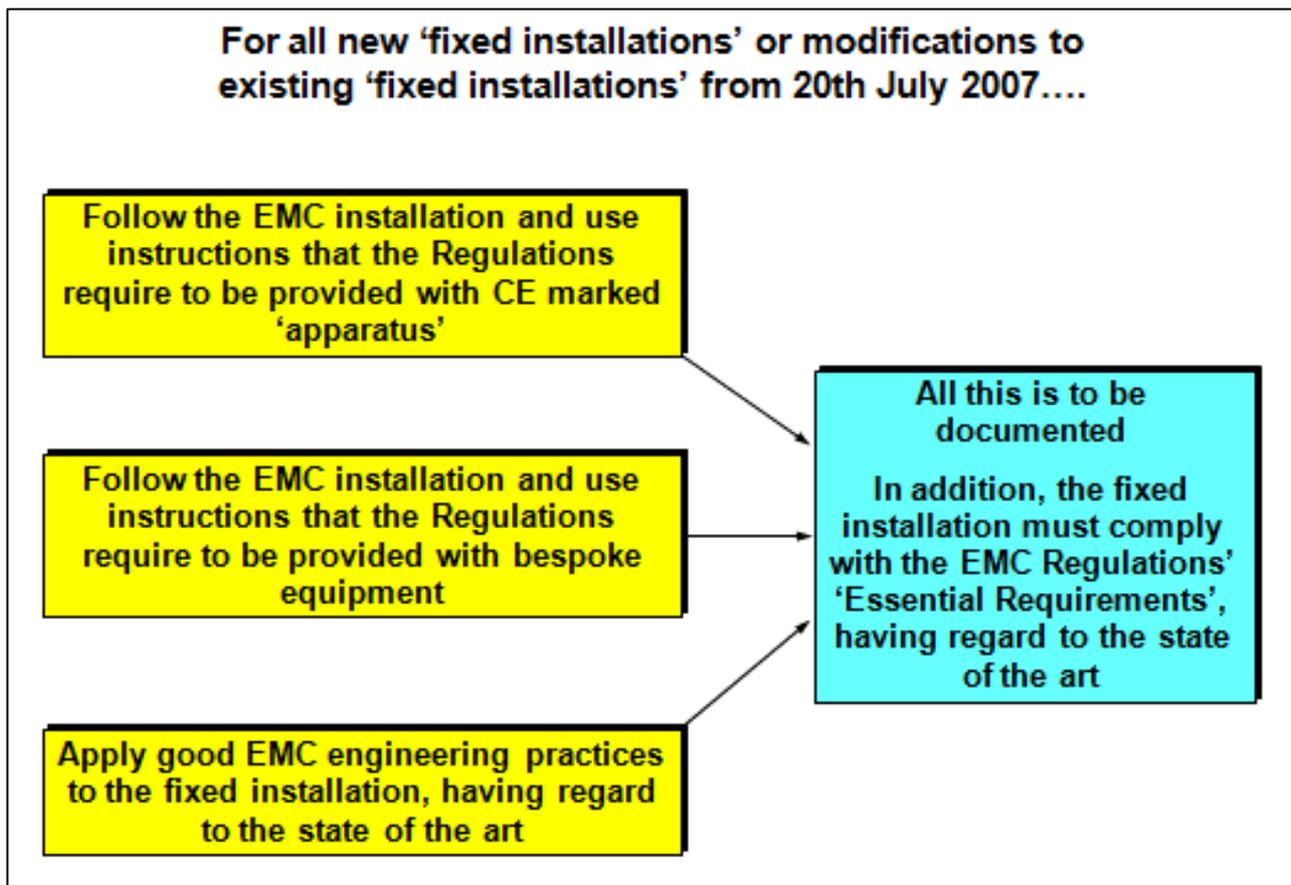


Figure 1 The compliance regime that applies to fixed installations from 20th July 2007

All fixed installations in the UK and Europe – which means *all* commercial and industrial sites and national infrastructure, as well as apartments, flats, etc., must appoint a ‘Responsible Person’ who must ensure their installation complies with the EMC ‘Essential Requirements’ – which means making sure it does not cause, or suffer from, undue levels of electromagnetic interference.

Also, from 20th July they must compile a record of all the changes to their electrical installation, which shows that good EMC Engineering practices were employed. They must keep this record updated and available for inspection for the entire operational life of their installation.

What I have been calling 'bespoke equipment', the new EMC Regulations calls: "*apparatus which is intended for incorporation into a given fixed installation; and is otherwise not commercially available*" – and this also has *specific* requirements for EMC compliance. It is not required to be CE marked, have a Declaration of Conformity, undergo any EMC testing, or even comply with the Essential Requirements – but before you open the champagne, take a close look at Figure 2.

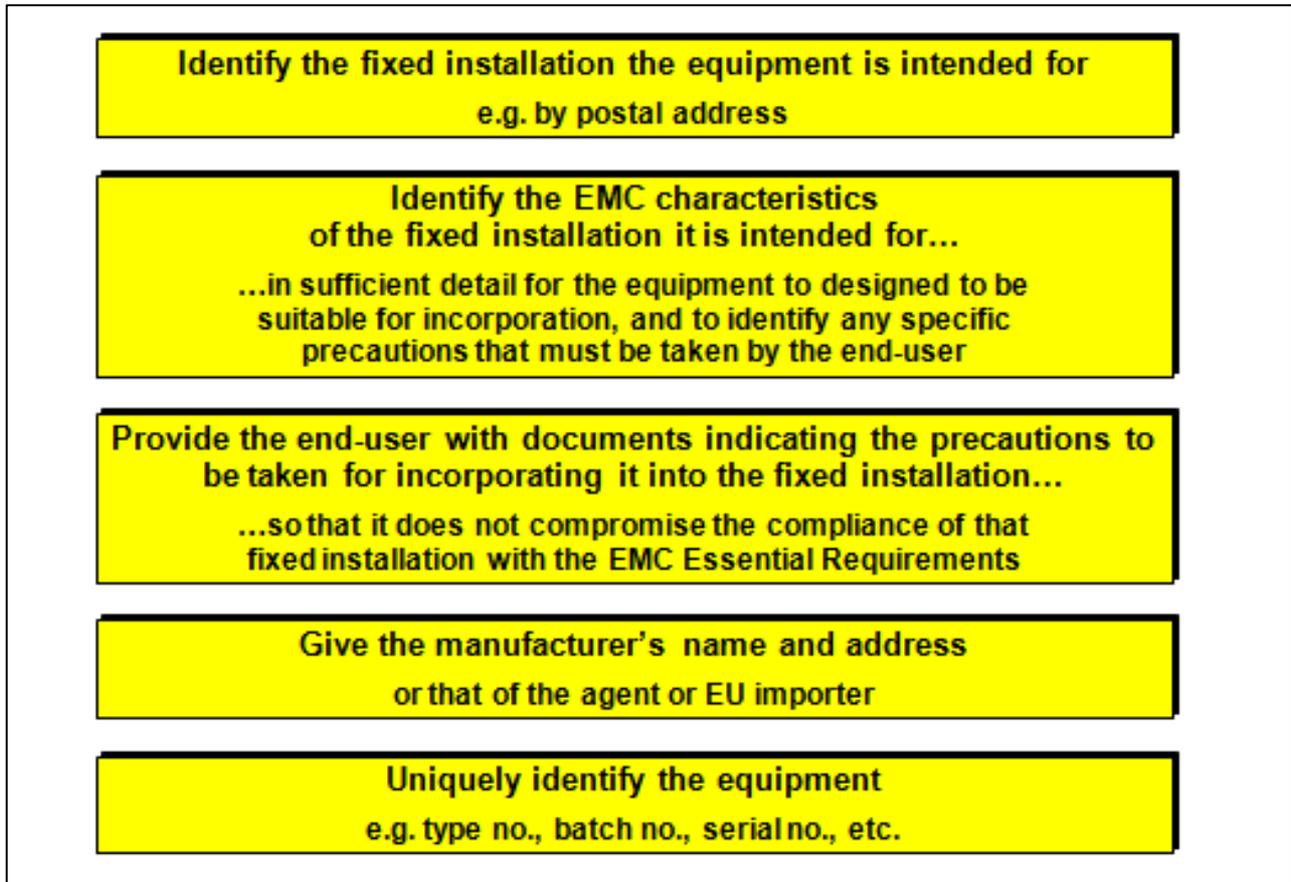


Figure 2 The compliance regime for 'bespoke' equipment

It might be tempting for panel and system builders to try to continue with the CE + CE approach and hope they do not get found out. But there is a warning in the EC Guide on 2004/108 which specifically points out that the CE + CE approach is inadequate. And there are plans to change the whole EU approach to CE marking Directives, which would lead to much more aggressive enforcement.

However, the biggest influence will be the Responsible Persons, who (as Figure 1 shows) must obtain EMC instructions from their bespoke equipment suppliers, follow them, and document that they did so. Over the coming years many Responsible Persons will learn something about good EMC engineering practices, and they will expect a little more than a file containing EMC Declarations of Conformity from the manufacturers of the components used to make the panels and systems.

Clued-up Responsible Persons will check out competing companies' EMC competencies before committing to a supplier – which should get the 'Fred's in sheds' out of the running, and might possibly help professional panel and system builders charge a reasonable price for once.

If doing EMC engineering sounds difficult, consider that assessing the EMC characteristics of a site can be as easy as going through a two-page checklist with the customer, and possibly doing a few simple sums. The few areas of uncertainty can often be resolved by waving around a hand-held instrument costing under £400. Where a thorough measurement is necessary, there are plenty of EMC laboratories with the test gear and expertise.

Doing good EMC engineering on a panel or system is also relatively straightforward, simply a matter of following some basic design and assembly rules. Plenty of good *practical* guidance already exists.

Finally, it is important to point out that the EMC Regulations only apply to bespoke equipment sold directly to the end-user. If your customer is a main contractor, for example, they do not apply to you – but they do to the main contractor when he supplies your equipment to the end-user.

This aspect of EMC compliance is unchanged since 1992, yet many main contractors do not understand it and simply apply the CE + CE approach to the equipment they purchase. The main contractor (say) *should* assess the EMC characteristics of the customer's site and then *should* specify the technical EMC characteristics of the bespoke equipment they purchase, in their purchasing contracts. Contract line items such as "must comply with all applicable EU Directives and UK Regulations" are meaningless as far as EMC is concerned, both legally and technically.

For general interest, Figure 3 shows an overview of how 2004/108/EC and the UK's 2006 EMC Regulations apply to electrical and electronic equipment.

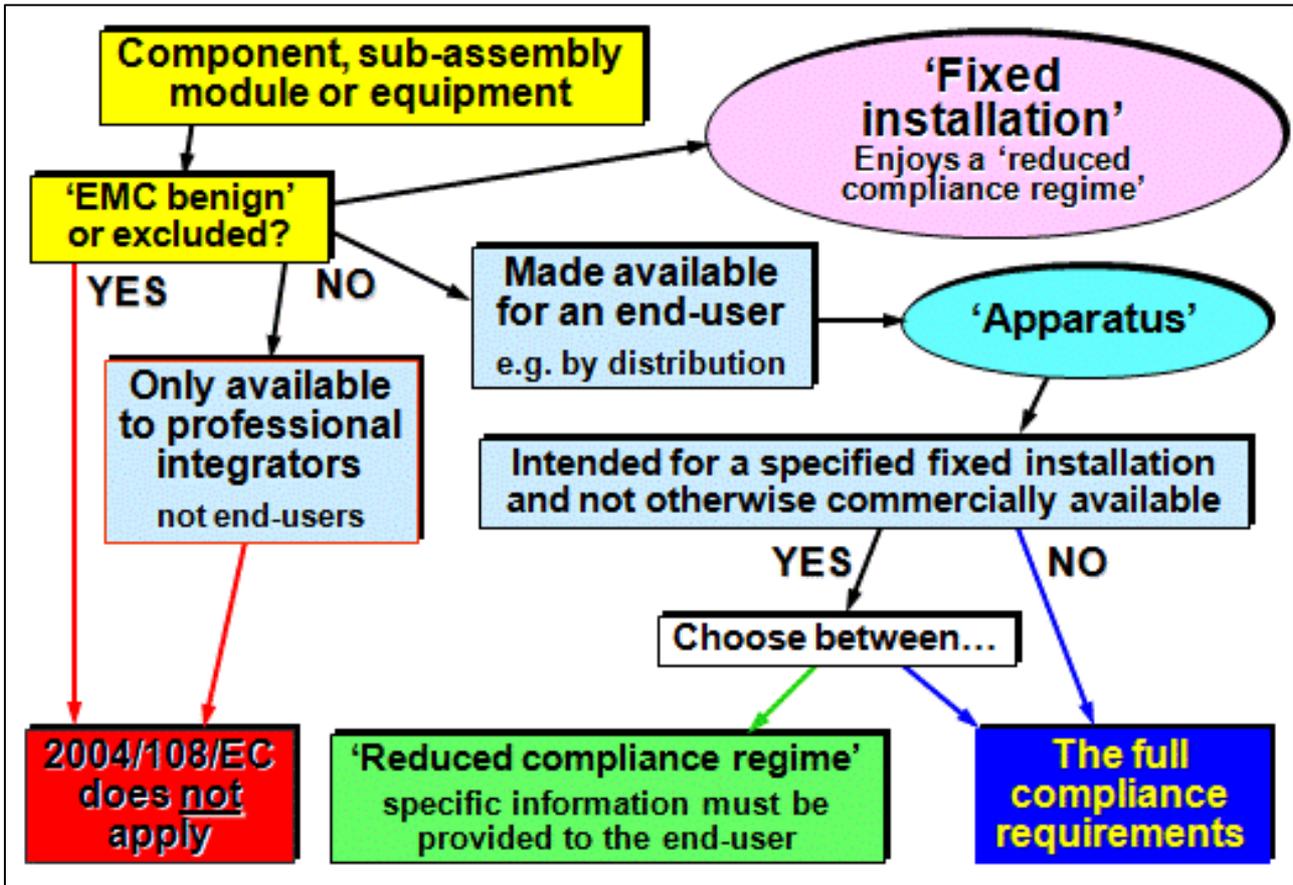


Figure 3 General overview of compliance requirements for equipment

For those who wish to investigate further, the Directives and Regulations, and their official guides, plus a great deal of useful information, are available as described in the document: 'Some Useful References on EMI and EMC' posted on this site.