

Group of Competent Bodies under the EMC

ECACB

Technical Guidance Note 1

Testing of plug-in cards and plug-in components in Personal Computers.

Announcement of the issue

A plug-in card or plug-in component which is sold separately to the end-user is tested in a host P.C.. The P.C. has already been successfully tested for compliance using the applicable standards. The plug-in card or plug-in component fails when the EFTB test is applied to the mains port of the P.C.. The client does not want the plug-in card or plug-in component tested for EFT. Should the Competent Body insist on the test.

Guidelines

A manufacturer of plug-in cards or plug-in components can use either the Self-Certification route or the TCF route to demonstrate compliance of his products with the EMC Directive. Plug-in cards or plug-in components require their own declaration of conformity because they are marketed direct to the end-user. The declaration of conformity applies to the plug-in card or plug-in component and not the system in which they are used.

The plug-in card or plug-in component is being tested because it will be CE Marked and a Declaration of Conformity will be made for the EMC Directive. The plug-in card or plug-in component derives its power from the host and therefore it has a power port and must meet the requirements of article 4 of the Directive. EFT is a relevant phenomenon and hence the effects of disturbances applied to this port have to be evaluated.

The test disturbances which have to be applied to each port of any plug-in card or plug-in component are determined by the applicable immunity standard:

For the enclosure port, 50 Hz. magnetic and RF electromagnetic fields are applied with the card installed in the host, since this is its operating environment. ESD is only applied to parts of the card or component accessible in its normal operating condition (usually only the shells of connectors which interface with equipment external to the host).

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Draft: 2.0 Final

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Disturbances are applied to signal / control ports subject to any restrictions which the immunity standard gives on the type or length of the cable normally connected to the port.

The power ports of a plug-in card or plug-in component are not usually accessible in their normal operating environment (i.e. installed in the host).

Strict interpretation of the immunity standard would require that disturbances have to be applied to the power port of the plug-in card or plug-in component exactly as specified in the immunity standard (e.g. +/- 0.5 kV., 5/50 ns for EFTB on the DC port in EN50082-1). However, the test disturbances specified for power ports in an immunity standard are based on representative disturbance levels on external power supplies to which host products are connected. Therefore, it is reasonable to test plug-in cards or plug-in components to this type of disturbance by applying the disturbance to the power port of the host rather than to the power port of the plug-in card or plug-in component.

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