# Technical Construction File route to compliance

## BASIC REQUIREMENTS FOR A TCF

Part I: Description of the apparatus:

i) identification of apparatus;

ii) a technical description.

Part II: Procedures used to ensure conformity of the apparatus to the protection requirements:

i) a technical rationale;

ii) details of significant design elements;

iii) test evidence where appropriate.

Part III: A report or certificate from a 'Competent Body'.

## SPECIFIC REQUIREMENTS FOR A TCF

The level of detail required in each of the above sections of the TCF will depend on individual circumstances, but might include the following:

**Identification of the apparatus:**

(a) brand name;

(b) model number;

(c) name and address of manufacturer or agent;

(d) a description of the intended function of the apparatus;

(e) for installations - physical location;

(f) external photographs;

(g) any limitation on the intended operating environment.

**Technical description of the apparatus:**

(a) a block diagram showing the interrelationship between the different functional areas of the apparatus;

(b) relevant technical drawings, including circuit diagrams, assembly diagrams, parts list, installation diagrams;

(c) description of intended interconnections with other products, devices etc;

(d) descriptions of product variants.

**Technical rationale**

(a) a brief exposition of the rationale underpinning the inclusion and balance of the evidence given.

**Detail of significant design aspects**

(a) design features adopted specifically to address EMC problems;

(b) relevant component specifications, (eg the use of cabling products known to minimise EMC problems);

(c) an exposition of the procedures used to control variants in the design together with an explanation of the procedures used to assess whether a particular change in the design will require the apparatus to be retested;

(d) details and results of any theoretical modelling of performance aspects of the apparatus.

**Test data**

(a) a list of the EMC tests performed on the product, and test reports relating to them, including details of test methods, etc;

(b) an overview of the logical processes used to decide whether the tests performed on the apparatus were adequate to ensure compliance with the directive;

(c) a list of tests performed on critical sub-assemblies, and test reports or certificates relating to them.

**Report or certificate from a competent body**

(a) reference to the exact build state of the apparatus assessed, cross referencing with Part I of the basic requirements of a TCF;

(b) comment on the technical rationale;

(c) statement of work done to verify the contents and authenticity of the design information in the TCF, cross-referencing with Part II (ii) of the basic requirements of a TCF;

(d) comment where appropriate on the procedures used to control variants, and on environmental, installation and maintenance factors which may be relevant;

(e) contain an analysis of the tests performed either by the manufacturer, an authorised third party, or the competent body itself,and the results obtained, so as to assess whether those tests indicate that the apparatus should comply with the essential requirements of the Directive, cross-referencing with Part II (iii) of the basic requirements of a TCF.

It is envisaged that Parts I and II of the TCF will be written by the manufacturer in cooperation or consultation with the Competent Body. The report from the Competent Body should therefore not need to repeat much of the information contained in Parts I and II.

At the end of the report a detatchable certificate will be supplied. This can be used by the manufacturer as an indicator of compliance where it is felt it would be inappropriate to submit the entire report. It is possible that where Parts I and II of the report prepared by the manufacturer largely 'speak for themselves', the Competent Body might prepare a certificate only.

It should be emphasised that the manufacturer is ultimately responsible for the declaration of conformity of products certified via the TCF route. The role of the Competent Body is to assert that the evidence contained within the TCF is consistent with conformity It is the manufacturer's responsibility to ensure that the information is correct and that subsequent production units are consistent with it.

## SUGGESTED TCF CONTENTS IN FIVE POSSIBLE CIRCUMSTANCES

i) **For apparatus where there is no applicable harmonised European EMC standard** (although the availability of generic standards theoretically means that a standard exists for every product, it is recognised that in practice their use may not be practicable for some products).

There may well be cases where a specific standard for a given product does not exist, and the generic standard is not considered appropriate, but nevertheless it will be in the manufacturer's best interests to assemble test data of some sort as the best method of demonstrating compliance with the protection requirements.

The emphasis will therefore be on drawing up in collaboration with the Competent Body a test programme suitable for the type of product being assessed, and on demonstrating the validity of this programme, rather than on a detailed analysis of the EMC protection methods used in the apparatus. Part II of the TCF (procedures used to ensure conformity) will reflect this, but Part I will still have to contain sufficient detail to identify the product.

ii) **For apparatus where harmonised European standards exist but the manufacturer applied that standard in part only** (eg where a manufacturer can justify that a particular type of apparatus complies with the protection requirements of the Directive without performing tests to any or all of the phenomena described in the relevant harmonised specifications).