

Obsolescence management — Guide to the substitution of components in electronic equipment

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Foreword

This Published Document is one of several which have been issued by the British Standards Society. Established in 1960, the Society has, as one of its key aims, the assistance of management in the application of standards in design, manufacture, quality assurance, in-service support, information technology and other relevant activities. The Society has a number of special interest groups dealing with the application of standards in various specialist technical areas, one of which is the Electronics Standards Group.

The Electronics Standards Group has prepared this Published Document as a result of difficulties experienced by its members and their contacts throughout industry when components designed into electronic equipment are no longer available or have to be replaced for other reasons. Many pieces of equipment (other than those for domestic use) are designed on the basis that they will remain substantially unchanged for several years and will have a service life of twenty years or more, but the components industry is continuously changing its products as the cost of making improvements comes down. This Published Document aims to give guidance to those responsible for finding components to suit such equipment, and it lists sources of supply for some of those components which are no longer made by the original manufacturers. Details are also given of several organizations which are examining this problem on a global basis and which may be able to give assistance when particular difficulties arise.

The document was drafted by members of the Electronics Standards Group and further refined as a result of discussions with engineers in several companies. The Society is grateful to all the members who have been involved in its preparation, and particularly to Tom Anderson (Zetex International), Graham Goring (Racal Avionics) and the Group's Chairman, Bob Vallance.

This new edition of PD 6614 incorporates technical changes only. It does not reflect a full review or revision of the standard, which will be undertaken in due course. It supersedes PD 6614:1999 which is withdrawn.

This new edition of PD 6614 has been published to give up-to-date technical information and to reflect the publication of BS 7000-5:2001, *Design management systems — Part 5: Guide to managing obsolescence*. BS 7000-5 deals with the strategic and planning aspects of obsolescence in general. PD 6614:2002 is a companion document to BS 7000-5 as its primary purpose is to provide guidance on the substitution of specific electronic components with obsolescence problems. This Published Document also lists some organizations dealing with obsolescence and possible sources of supply for components no longer made by their original manufacturer.

The document will be periodically updated. Users of the document are invited to submit comments to the Secretary, British Standards Society (see inside front cover).



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This publication is not to be regarded as a British Standard.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 15 and a back cover.

Introduction

The aim of this Published Document is to give guidance on the substitution of electronic components, used in the manufacture of electronic equipment. Substitution may be necessary for various reasons (see clause 3). The most common reasons are obsolescence or unavailability. A considerable number of organizations deal with the subject of obsolescence and an attempt has been made to cover these in Annex A. The information given in Annex A is correct at the time of publication, but is liable to change.

In order to reduce the problem of obsolescence it is the responsibility of the equipment designer to check that the availability of components is appropriate for the expected life span of the equipment. In practice this information is often difficult to obtain. Ideally responsibility will have been assigned within an equipment manufacturer's organization to make periodic checks regarding component availability. Such checks can help ensure that the business is made aware of any significant changes in availability at the earliest opportunity. This awareness can also enable considered decisions to be made regarding component substitution. Such periodic checks may be made through appropriate component suppliers (see Annex B) or enabled through third party obsolescence management tool providers, see also PD 6667.

1 Scope

This Published Document gives guidance on the substitution of electronic components used in the manufacture of electronic equipment. It is intended for use by both procurement personnel and design personnel. It includes guidance on those components for which it is safe to use "better than" characteristics, as well as on those for which it is not safe. Examples of each type of component family are given (e.g. resistors, integrated circuits). Guidance is also given on how to deal with changes in the quality approval systems applicable to electronic components.

Annex A gives details of organizations which are currently considering the subject of obsolescence.

Possible sources of supply for some semiconductors which are no longer available from the original manufacturers are given in Annex B.

This Published Document is not intended for use by maintenance personnel for replacement of defective components in the field, although some of the guidance may be helpful.

2 Terms and definitions

For the purposes of this Published Document, the following definitions apply.

2.1

obsolete

no longer in production by the manufacturer

2.2

obsolescent

subject to an announced end of production date by the manufacturer

2.3

item

an object which is identified by a part number and manufacturer

NOTE An item may also be defined by one or more specifications.

2.4

component

item (or sub-assembly of items) used in the composition of an apparatus, but which is not itself an apparatus with an intrinsic function intended for the final customer

NOTE 1 Examples of a component are integrated circuits, unpopulated boards, miniature resistors or small capacitors. A component may be more complex and may even be a sub-assembly, as long as it does not have an intrinsic function and its only purpose is to be incorporated inside an apparatus.

NOTE 2 The above definition comes from *Explanatory document on Council Directive 89/336/EEC of 3rd May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility*.

2.5

manufacturer

company which holds the original design rights for the item

NOTE 1 This company is not necessarily still able to supply the item.

NOTE 2 Some types of component (e.g. switches, connectors) may have their final assembly carried out by a distributor or stockist.

2.6

fit

physical dimensions of an item

2.7

form

physical attributes of an item other than dimensions

2.8

function

purpose for which an item is used

NOTE The function can differ from the purpose for which the item was originally designed (see clause 5).

2.9

specific application

function in which the effects of deviation from the item's original published parameters can be evaluated

2.10

general application

function in which the effects of deviation from the item's original published parameters cannot easily be determined

2.11

supplier

source of supply other than the manufacturer

2.12

qualified manufacturer's line (QML)

US Military approval scheme in which a manufacturer's process procedures and statistical process controls are deemed suitable for the supply of components to US Military contracts

3 Reasons for substitution

Substitution may be necessary for the following reasons which are unrelated to the product design:

- a) the item is obsolete;
- b) the item is obsolescent;
- c) minimum order quantity is too high;
- d) the manufacturer is in financial difficulty or receivership;
- e) the item is on long delivery;
- f) the item is single-sourced;
- g) component quality problems.

Alternatively, substitution may be necessary because changes are to be made to the product design for the following reasons:

- h) value engineering (this includes variety reduction and standardization);
- i) reliability improvement;
- j) customer requirements;
- k) equipment quality problems.

Clause 4 is relevant when the reasons given in a) to g) apply.