



IPC-9252A

Requirements for Electrical Testing of Unpopulated Printed Boards

Developed by the Electrical Continuity Testing Task Group (7-32c)
of the Product Assurance Committee (7-30) of IPC

Supersedes:

IPC-9252 - February 2001
IPC-ET-652A - October 1990

Users of this publication are encouraged to participate in the
development of future revisions.

Contact:

IPC
3000 Lakeside Drive, Suite 309S
Bannockburn, Illinois
60015-1249
Tel 847 615.7100
Fax 847 615.7105

Requirements for Electrical Testing of Unpopulated Printed Boards

1 SCOPE

This document is intended to assist in selecting the test analyzer, test parameters, test data, and fixturing required to perform electrical test(s) on all unpopulated printed boards (PBs).

The testing of PBs with embedded components (e.g., resistors, capacitors, etc.) is not addressed in this document revision.

1.1 Purpose Electrical testing verifies that the conductive networks on the PBs are interconnected according to the design requirements.

Electrical test does not ensure that the PB can be assembled or that the PB meets all of the customer's requirements. Many physical characteristics of the conductors (dimensional accuracy, solder mask, conductor geometry and nomenclature registration, presence of holes, etc.) can't be determined by electrical test. Other checks should be employed to confirm these characteristics.

1.2 Introduction Electrical testing of PBs ensures that the PB conforms to the electrical design requirements. This document defines different levels of testing available in-

order to achieve this purpose. In selecting the appropriate test level, technology, equipment, and associated fixturing, a suitable compromise between productivity, features, and costs can be found.

The costs associated with electrical testing can vary dramatically. Costs alone, however, should never be the only criteria for selecting the appropriate test level and equipment. As shown in Figure 1-1, many other important areas require consideration. For example, spacing and density of a PB design may be of paramount importance to one user, while another may be concerned with testing parameters and service reliability. A careful examination of all areas of concern and how they may affect each other, not just how they perform individually, is therefore significant. Whatever the selection criteria may be, qualifying "benchmarks" should be performed on known product.

1.3 Selection of the Proper Test Level All testing levels (see Table 4-1) defined in this document are intended to check electrical functionality of the design. However, the test level specified will affect test comprehensiveness. For example, when selecting test voltages and resistances for the PB, the user must take into account both the final application of the PB and the level of defect analysis needed to

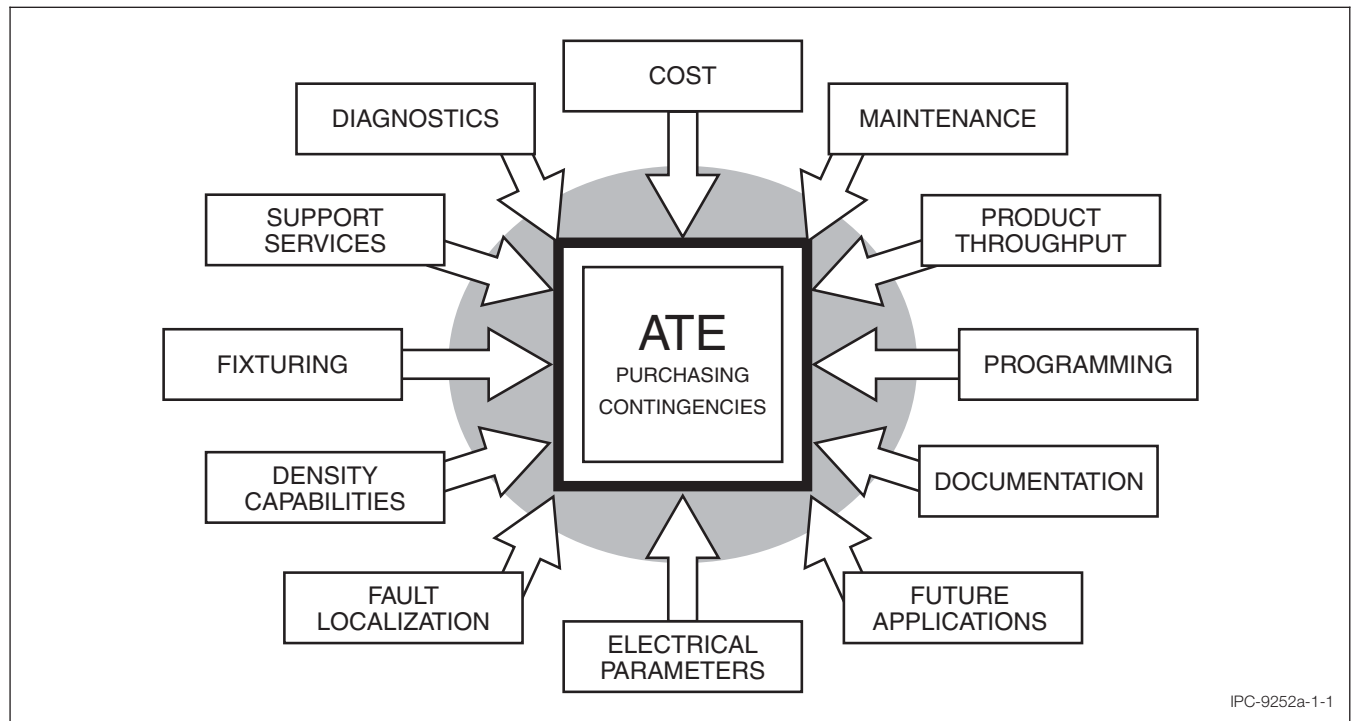


Figure 1-1 Automatic Test Equipment (ATE) Selection Criteria