

REQUIREMENTS FOR DESTRUCTIVE PHYSICAL ANALYSIS (DPA) TESTING OF MULTILAYERS

When Boeing Specification BSPS-23-001 or DPA to IPC-6012 is invoked, DPA testing shall be in accordance with the requirements as defined in the specification and Engineering drawing. Otherwise, when DPA testing is required on purchase orders it shall be in accordance with the following:

Suppliers shall perform DPA testing on all multilayer board lots. A lot is defined as a group of Printing Wiring Boards (PWBs) that are processed together through lamination, drilling, plating, and final finish and are inspected together as a lot. A lot shall consist of only one part number, and all boards in one lot shall have a common date code.

DPA shall apply to supplier lot quantities of 5 or more PWBs.

Procedure

One board from each production lot that has passed electrical testing and has passed quality-conformance acceptance, and has the equivalent to the thinnest copper plating within the lot shall be evaluated by DPA. The DPA board shall be thermally stressed three times in accordance with IPC-TM-650 Method 2.6.8. If the DPA board is too large to be thermally stressed, a test specimen measuring a minimum of 4 square inches may be removed from the board for the thermal-stress testing. After thermal stress, three holes for through-holes and each via type (blind, buried, through, etc.) shall be microsectioned and evaluated per the performance requirements used for quality-conformance test coupons.

ALL TEST SAMPLES AND REMAINING PORTIONS OF THE SAMPLE BOARD SHALL BE DELIVERED TO BUYER

Completed Board

A minimum of 4 sq. in. (2" x 2") of the sample board shall be thermally exposed per the acceptance specification. When the board is less than 4 sq. in., the remaining portion of the board shall be thermally exposed. This sample shall be reviewed in cross section and shall meet solderability, marking ink tape test, and cross sectional requirements of the applicable acceptance documentation.

DPA Failures

DPA failures shall be documented by the Seller and reported to Buyer's Supplier Management Quality Engineering.

DPA Referees

Any alternative evaluation (referee test) requires the prior approval of Buyer's Supplier Quality and Materials and Processes Engineering representatives.

DPA Test Procedure Changes

Changes in DPA testing procedures may be allowed provided the responsible Design Engineer, Materials and Processes Engineer, and Buyer's Supplier Quality Engineer have granted prior written approval. It shall be the responsibility of Seller to maintain documentation of such changes and to provide a copy to Buyer's Authorized Procurement Representative prior to implementation.

Any DPA Test Procedure Change must be coordinated through Buyer's Authorized Procurement Representative and shall be included in the contract via formal change, prior to shipment.