



IPC-TM-650 TEST METHODS MANUAL

1.0 Scope This test method is designed to determine the minimum and maximum thickness of the base material of metallic clad laminates by microsectioning and optical measurement.

2.0 Applicable Documents

IPC-TM-650 Method 2.1.1, Microsectioning

IPC-TM-650 Method 2.2.18, Determination of Thickness of Laminates, by Mechanical Measurement

3.0 Test Specimens

3.1 Size Unless otherwise specified, a specimen measuring 25.4 X 12.7 mm [1.0 X 0.5 in] shall be taken from the laminate sample.

3.2 Quantity and Sampling Unless otherwise specified, two samples shall be taken from the lot that represent the centermost area and the edges, but no closer than 25.4 mm [1.0 in] from the edge, of the as-manufactured sheet.

4.0 Apparatus or Material

4.1 Any optical inspection measuring device with a capability of 100X and 200X with an accuracy to 0.0025 mm [0.0001 in].

4.2 A microsectioning system capable of preparing specimen mounts that can be used for this procedure.

5.0 Procedure

5.1 Preparation of Specimens Each specimen to be measured shall be microsectioned in accordance with IPC-TM-650, Method 2.1.1. The long dimension of the specimen shall be in the plane of examination. Specimens may be ganged in accordance with the sampling procedure.

5.2 Evaluation Examine the entire length of the specimen. Determine and record the minimum and maximum thickness of each specimen to the nearest 0.0025 mm [0.0001 in] using 100X magnification and in accordance with Figures 1 or 2, in accordance with the applicable specification. Unless otherwise specified, Figure 2 shall be used. Any referee measurements shall be made at 200X magnifications.

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| Number 2.2.18.1 | |
| Subject Determination of Thickness of Metallic Clad Laminates, Cross-sectional | |
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5.3 Report Report the minimum and maximum readings found from each specimen inspected, and whether the Parallel (Figure 1) or Radius (Figure 2) Method was used.

6.0 Notes Cross-sectional thickness relates to the effective electrical insulation thickness and will usually be less than that found by mechanical means (see IPC-TM-650, method 2.2.18). For determination of the laminate's contribution to overall board thickness, the mechanical approach is preferred (when measuring thin cores for multilayer applications).

