**The Institute for Interconnecting and Packaging Electronic Circuits**
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# IPC-TM-650
# TEST METHODS MANUAL

| Number | |
|---|---|
| **2.2.12.2** | |
| Subject<br>**Weight and Thickness of Copper Foils with Releasable Carriers** | |
| Date<br>**7/89** | Revision |
| Originating Task Group<br>**N/A** | |

**1.0 Scope** This method of test covers the procedure for determining the weight and/or thickness of releasable carrier copper foils for printed circuits.

**2.0 Applicable Documents** None.

**3.0 Test Specimen** Use template described below to cut three samples of carrier copper foil. Samples should be taken from near the left and right edges and center across the width of the roll.

**4.0 Apparatus**

**4.1** Balance capable of weighing accuracy to ±0.001 grams.

**4.2** Knife suitable for cutting copper.

**4.3** Template pre-cut to 0.026 sq. meters [40 sq. in] 100 ±0.1 mm by 250 ±0.1 mm [4 ±1/32 in by 10 ±1/32 in].

**4.4** B-Stage (prepreg) material and sufficient laboratory equipment for lamination.

**5.0 Procedure**

**5.1 Test**

**5.1.1** Cut three specimens 100 x 250 mm [4 by 10 inches] in size across the web of the roll.

**5.1.2** Using a balance, weigh three separate specimens to the nearest 0.001 grams. Record the weights for each specimen.

**5.1.3** Laminate the three specimens to a B stage (prepreg) material to a total thickness of 1 mm [0.062 in] thick (suggest 8 piles of No. 7628 glass style 0.17 mm [0.0068 in] nominal thickness or equal).

**5.1.4** After lamination, remove the carrier substrate. Weigh the carrier on a balance to the nearest 0.001 gram. Record the weights, Subtract the weights recorded from the corresponding weights in 5.1.2.

**5.2 Evaluation**

**5.2.1** To calculate the approximate thickness of the thin copper foil in microns, multiply the weight difference obtained in 5.1.4, by the factor 4.349.

**5.2.2** To calculate the area weight in grams per 6451 square mm [254 square inches] of the carrier copper foil, multiply the weight difference obtained in 5.1.4 by the factor 6.35.

**5.2.3** To calculate the area weight in ounces per 3657 square mm [square foot] of the carrier copper foil, multiply the weight difference by the factor 0.127.