



IPC-TM-650 TEST METHODS MANUAL

1.0 Scope This method of test covers the procedure for determining the weights and/or thickness of etchable 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 $\pm 1/32$ in by 10 $\pm 1/32$ in].

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.

Number 2.2.12.3	
Subject Weight and Thickness Determination of Copper Foils with Etchable Carriers	
Date 7/89	Revision
Originating Task Group N/A	

5.1.3 Remove the copper from the carrier substrate by etching the samples in a 50% nitric acid solution for 30 seconds or a suitable time to remove the copper foil. Rinse and dry.

5.1.4 Reweigh carrier substrate on the balance to the nearest 0.001 gram. Record the weight of each sample. Subtract the weights recorded from the corresponding weights in 5.1.2.

5.2 Calculation

5.2.1 To calculate the approximate thickness of the etchable carrier 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], multiply the weight difference obtained in 5.1.4 by the factor 6.35.

5.2.3 To calculate the area weight of the etchable carrier in ounces per 3657 square mm [square foot], multiply the weight obtained in 5.1.4 by the factor 0.127.