



IPC-TM-650 TEST METHODS MANUAL

Number 2.4.27.2	
Subject Solder Mask Abrasion (Pencil Method)	
Date 2/88	Revision A-Reaffirmed
Originating Task Group N/A	

1.0 Scope This method is designed to evaluate the hardness of solder masked surfaces and its resistance to abrasion.

2.0 Applicable Documents

ASTM D3363-74 Film Hardness by Pencil Test

3.0 Test Specimen IPC Multipurpose Test Board, IPC-B-25, or any preproduction or production board coated with solder masking.

4.0 Apparatus Standard set of hardness pencils (Eagle Turquoise brand suggested, available from local drafting supply houses).

4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H
Soft → → → → → → → → → Hard

5.0 Procedure Place the test board on a firm horizontal surface. Starting with the hardest pencil, hold pencil firmly against the solder mask at a 45 degree angle. Push pencil away from the operator with uniform downward and forward pressure in a 6.4 mm [1/4 inch] stroke. Proceed with the next softer pencil in succession until a pencil is used which will not cut into or gouge the solder mask.

6.0 Evaluation Record the value of the hardest pencil which will neither cut into nor gouge the solder mask.