Number	
2.4.9.1	
Subject	
Peel Strength of Flexible Circuits	
Date	Revision
11/98	
Originating Task Group	
SMT Mounting Adhesives Task Group (5-24d)	

IPC

IPC-TM-650
TEST METHODS MANUAL

1 Scope The purpose of this test is to characterize peel adhesion at ambient conditions.

2 Applicable Documents

IPC-3408 General Requirements for Anisotropically Conductive Adhesive Films.

3 Test Specimens

3.1 1 mm pitch (center-to-center) flex test circuits and 1 mm pitch (center-to-center) test boards

4 Apparatus

4.1 Soda-lime glass test slides or printed circuit boards

4.2 All other test materials listed in IPC-3408

4.3 'Instron-1122' tensile tester or equivalent, equipped with air-powered jaws and 50 kg load cell, adjustable to 10 kg full scale

4.4 Test fixture, mountable on lower stage of tensile tester

5 Procedure

5.1 Sample Preparation

5.1.1 Cut flex test circuits to the appropriate length (see Figure 1).

5.1.2 Use of new PCBs is recommended. If new boards are being used there should be no need for any special cleaning procedure. If used boards are to be used, they should be inspected to ensure that:

a) Protective metalization (Au or Pb-Sn) is intact,

b) FR-4 isn't significantly discolored from prior high temperature exposure,

c) The board is free of any residue from previous tests.

5.1.3 Refer to IPC-3408 for proper bonding procedure.

5.2 Procedure

5.2.1 Prepare at least three, and preferably five, samples for each test point to be measured.

5.2.2 Confirm proper calibration of the tensile tester, and ensure proper full-scale setting.

5.2.3 Mount sample in test fixture. Secure the flex circuit tail into the air-powered jaws on the cross-head stage, being careful to place the jaws as close to and as square to the bond-line as possible.

5.2.4 Peel the sample at a rate of 2.5 mm/min., and record the peak adhesion value.

5.2.5 Repeat steps 3 and 4 for all additional samples. Compute the average adhesion value and record.
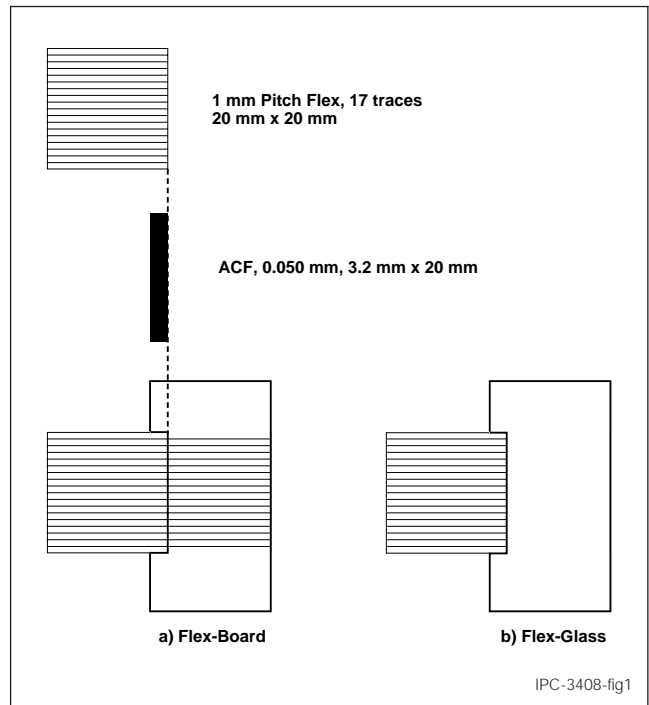

1 mm Pitch Flex, 17 traces
20 mm x 20 mm

ACF, 0.050 mm, 3.2 mm x 20 mm

a) Flex-Board   b) Flex-Glass

IPC-3408-fig1

Figure 1   Sample Pattern