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

Number	
2.4.14	
Subject	
Solderability of Metallic Surfaces	
Date	Revision
4/73	
Originating Task Group	
N/A	

1 Scope The purpose of this test is to determine the solderability of printed circuit boards (PCBs) that are to be joined by a soldering operation employing rosin flux and immersion in molten solder or by use of a soldering iron.

2 Applicable Documents

ASTM-B32 Solder

ASTM-D509 Flux

IPC-A-600 Acceptability of Printed Boards

3 Test Specimen

3.1 The specimens shall be representative of the manufactured product, consisting of three land strips from a printed wiring panel with a conductor pattern 0.64 cm wide by 5 cm in length.

3.2 When the printed wiring panels being tested contain circuit paths 0.64 cm wide, these may be used in lieu of the land strips.

3.3 The test specimens may also be terminal areas and conductor paths that are used for making electrical connections on production printed wiring panels or individual PWBs.

4 Equipment/Apparatus

4.1 An electrically heated, thermostatically controlled solder pot containing at least 1 kg of the required solder and of sufficient size to accommodate the required sample test specimens (0.64 cm x 5 cm). The temperature control shall be capable of maintaining the solder at a temperature of 232°C ± 6°C.

4.2 The solder shall meet the requirements of Alloy Grade 60B per ASTM-B32 - nominal composition 60% tin and 40% lead for Procedure A, B, and D. For Procedure C, the solder shall be as specified.

4.3 Flux The flux shall be 25% by weight of Grade WW rosin per ASTM-D509 and 75% by weight of 99% isopropyl alcohol.

4.4 Stop watch

4.5 A microscope capable of examining specimens at 10X

5 Procedure

5.1 Test

5.1.1 Immerse the test samples described above in flux to a depth of 2.5 cm to 5 cm for five seconds.

5.1.2 Withdraw the samples from the flux and air dry for one minute in a vertical position. Then lower specimen until the bottom edge contacts the molten solder in the bath.

5.1.3 Hold this position for one to two seconds and immerse the specimen at a rate of approximately 1.3 cm per second to the depth that was fluxed. Keep in the solder for two seconds and withdraw at 1.3 cm per second.

5.1.4 Allow the samples to drain and cool in a vertical position.

5.2 Evaluation

5.2.1 After the specimens have been solder dipped and thoroughly cleaned of flux, they should be examined with at least a 10X lens.

5.2.2 Photographic standards in IPC-A-600A may be used in evaluating solderability, for PWBs and flat metal surfaces.