



iNEMI[®]

International Electronics Manufacturing Initiative

**2009
iNEMI Board
Flexure
Initiative**

***ITC
Austin, Texas
Nov 5, 2009***

Advancing manufacturing technology

Agenda

- 2009 Accomplishments
- IPC 9707 Spherical Bend Test Standard Highlights
- Review 2010 plans

2009 Accomplishments

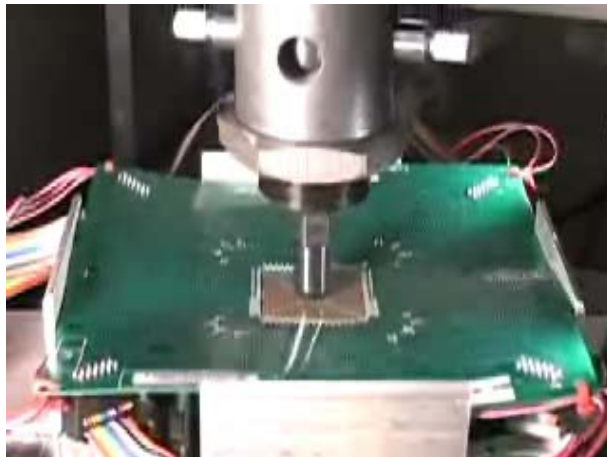
- Completed 1st draft of 9707
- Reviewed by IPC 6-10d Board Assembly committee
- Revised draft is currently under final review by IPC

- Gained approval from JEDEC 14.1 committee to ballot 9707 through JEDEC
 - Balloting through IPC & JEDEC simultaneously once 2nd IPC review complete

Scope of Proposed IPC/JEDEC 9707 Standard: Spherical Bend Test Method for characterization of board level interconnects

This publication specifies a common method of **establishing strain limits of board-level device interconnects under flexural loading conditions** that may occur during conventional board/system assembly, manufacturing, and test operations. This method is applicable to surface mounted BGA components only, without enabling loads or backing plates, attached to printed wiring boards using conventional solder reflow technologies.

Perform testing → Set strain limits



Prevent damage during mfg



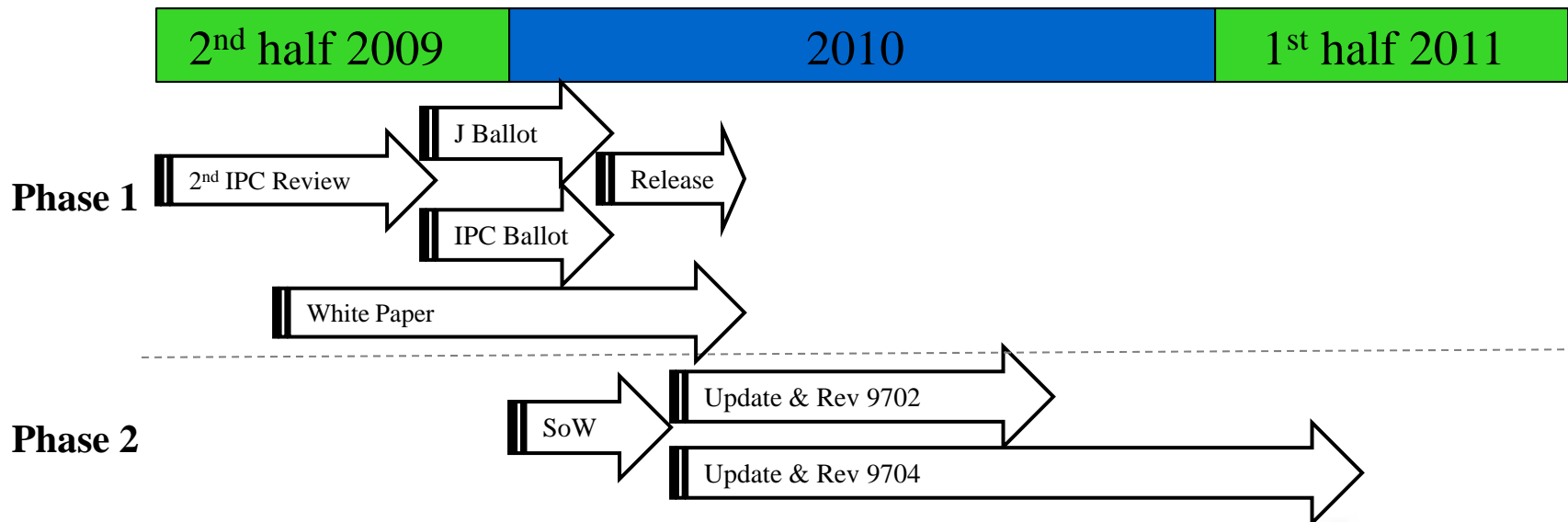
Proposed IPC/JEDEC 9707 Standard

- **Details only the testing method and does not set reliability and reporting expectations**
 - Scope clarified
- **Key parameters are still provided but an exact testing recipe is no longer proscribed. Examples:**
 - Alternative fixture design examples are shared to demonstrate flexibility in execution of the testing method
 - Key test board design features are provided but exact board design is left to discretion of the company performing the testing
- **Supplemental information has been largely removed and IPC/JEDEC references have been provided instead, where possible**
 - Supplemental information will be shared in an IPC white paper – case study format
- **Final draft is now in the JEDEC standard format**



2010 Plans

- **Release IPC/JEDEC 9707 Spherical Bend Test Standard**
 - In parallel, release white paper with an example of setting up & executing a test to assist users in using the standard
- **Update IPC/JEDEC standards 9702 & 9704**
 - Approve SoW through iNEMI for phase 2
 - Update 9702 & 9704 through IPC & JEDEC



Back-up Slides



Final Outline of 9707

- **Foreword**
- **Introduction**
- **Scope**
- **Normative References**
- **Terms and Definitions**
- **Symbols and Abbreviated Terms**
- **Sample Size**
- **Apparatus and Setup**
- **Test Vehicles**
- **Test Procedure**
- **Failure Criteria and Analysis**
- **Annex A Failure Analysis Techniques**

Proposed IPC/JEDEC 9707 Standard

- **Feedback/requests from IPC Review:**
 - **Graphs showing relationship between load span and global strain levels:**
 - Data has not been collected at the global strain gage location
 - Modeling is complex and has not been performed
 - Could not be validate with test data if it was available
 - **Specific design recommendations that have been requested are not included in the 9707 standard**
 - **Different test setups are included as examples**
- **Key parameters still provided but exact testing recipe is no longer proscribed. The following have been removed in the current draft:**
 - **Figures detailing recommended procedure, test board layout, strain gauging, etc. are removed to keep the document general**
 - **Key test board design features are provided but exact board design is left to discretion of the company performing the testing**
 - **Storage/aging recommendation (8 to 168 hours) removed from standard**
 - **Sample size section has been reduced, references IPC/JEDEC 9703**

9707 Proposed White Paper

- **Case study of a setting up and executing a spherical transient bend test**
 - **Details on how to select an appropriate sample size**
 - **Recommendations on apparatus, set-up, and test vehicle selection**
 - **Best practices on test execution**
 - **FA guidance**



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