

Proposed Updates to the 9 Mil Spec for Mechanical Shock

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Outline

- **Document Description and Revision History**
- **Motivation for Revisions**
- **Proposed Updates**
- **Other Issues for Discussion**



Document Description and Revision History

- **The 9 Mil shock spec (9958003) governs single pulse mechanical shock testing**
 - **Covers testing in “Production” environments**
 - **Often referenced in product specifications or test plan documents**
- **Includes requirements for:**
 - **Instrumentation systems**
 - **Calibration practices**
 - **Test methods**
- **Last update was in 1992 by N. Davie**
 - **Original author is unknown**



Motivation for Revision

- **Data acquisition systems and test practices have changed significantly in two decades**
 - The document has not been updated to address the capabilities of modern data acquisition systems
 - Calibration practices for acquisition systems and transducers have changed
 - Document does not address some newer types of measurement systems (such as laser vibrometers)
- **Some requirements in the document add time to a test without necessarily adding value**
 - Fidelity check requirements are often easily met by modern data acquisition systems



Proposed Updates

- **Equipment calibration intervals**
 - Change from 6 months to 1 year
- **Calibration methods**
 - Revise to allow calibrations that are traceable to NIST standards
- **Fidelity checks for acquisition systems**
 - Currently required both annually and at time-of-use
 - Remove the annual check for data acquisition systems with calibrations traceable to NIST standards
 - Revise time-of-use check sections to reflect current technology
- **Post-processing methods**
 - Current document doesn't include anything about post-processing of data
- **Filtering and A/D conversion**
 - Include requirements for anti-aliasing filters and A/D conversion systems
- **Other changes?**



Other Issues for Discussion

- **Who has a stake in the document?**
 - **SNL/NM and SNL/CA**
 - **KCP**
 - **Outside contractors/suppliers to DOE and NNSA**
 - **Others?**
- **Current document only addresses single pulse testing**
 - **Tests using resonant fixtures are now part of Production testing**
 - **Separate 9 Mil document may be needed for these types of tests to address bandwidth requirements, post-processing practices, etc.**
- **How to move forward with revisions**