

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