Pitfalls of Revising National Standards –
A Portable Instrument Standard

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Personal Background

• Accepted for the American Society for Engineering Education SMART scholarship
• Interned at NSWCCD summer 2015
• Bachelor of Science in Nuclear Engineering from University of Michigan
• Began NSWCCD work in June 2016, joined ANSI 42.17 AC Revision Group in July 2016
ANSI 42.17AC

• 42.17A: Performance Specifications for Health Physics Instrumentation – Portable Instrumentation for Use in Normal Environmental Conditions
• 42.17C: Performance Specifications for Health Physics Instrumentation – Portable Instrumentation for Use in Extreme Environmental Conditions
ANSI 42.17AC

• Revision began in February 2014 to combine 42.17A and 42.17C

• Group comprised of commercial and government personnel

• Update to reflect modern characteristics and test methods
Difficulties
Difficulties: Combination of Standards

• Redundant information difficult to identify

• Additional information extends length of document

• New organizational structure needed

• Conflicting requirements for same topic
Difficulties: Outdated Information

- Test methodologies covered outdated processes.
- Requirements no longer apply
- Needed to work in concurrence with current military and industrial standards
- Many external references no longer valid.
Difficulties:
Location/Communication

• Different locations for each member of group

• Difficult to find common time for conferencing
Difficulties: Conflict of Interest

• Government vs. industry needs

• Theoretical robustness vs. application practicality

• Example: neutron energy dependence
  – Acceptable reference sources posed discrepancy.
  – Compromised to require comparison to known response curves for a variety of common sources
Difficulties: Specialization

• Knowledge specialization in group can lead to unnecessarily complex requirements
• Specialist revision difficult to verify (if necessary)
• Need simplicity of specification for applications
Difficulties: Advice

• Formulate compromise requirements
• Schedule meetings far in advance
• Agree to meet at national conferences
• Group should contain multiple subject matter experts
• Compromise between specificity and universality
Positive Aspects
Positive Aspects: Combination of Standards

- Creates a universal standard instead of situational standards
- Improves records retention
- Ensures no contradictory requirements
- Streamlined for easier use
Positive Aspects: Many Perspectives

- Wide range of technical information
- Can assess current industry and military trends
- Ensures standard remains general for all applications
Conclusion

- Updating and combining standards establishes relevance and utility
- Finding compromises is important
- Groups should contain multiple subject matter experts
- Good communication is key to success of standard
- Plan meetings far in advance or at national conferences
Questions?