Presentation Outline

• **Cargo Liner Test Air Shroud Development**
  – Round robin interlab study in progress

• **Sonic Seat Cushion Air Shroud Study**
  – Round robin interlab study pending

• **Sonic Burner Video Update**
  – Assembly and Operation of the Sonic Burner
Sonic Burner Cargo Liner Test: Air Shroud Development and Round Robin Study
Shroud Study Background

• What is the purpose of the study?
  – Reduce test result disparities among burn labs

• How are we trying to address this issue?
  – Minimize disruptive airflow near sample

• What is the anticipated outcome?
  – Incorporate shroud into the test method to increase test result repeatability and reproducibility
Shroud Design

• Design
  – 18-gage perforated aluminum
  – Mounted with threaded rod on top of sample frame
  – No frame modifications

• FAATC Results
  – Reduced temperature fluctuations
  – Measured peak temperatures equivalent to unshrouded tests
Cargo Shroud Round Robin Study

- Test shroud in different lab environments to demonstrate shroud effectiveness
  - No two burn labs are the same
    - Size, shape, airflow characteristics, temperature, etc.
  - Unique test environments produce unique results
    - Demonstrated in previous round robin studies
  - Shroud reduces the influence of these factors
    - Serves as a standardized “miniature test cell” around sample
  - Improved test result repeatability and reproducibility
Cargo Shroud Round Robin Study

**TEST BURNER**
- Study oriented towards Sonic burner
- Legacy-type burners also welcome to participate

**SHROUD**
- Shipped in pieces for packaging purposes
- Minor assembly required
- Rests on top of ceiling panel mounting frame

**SAMPLES**
- 10 epoxy resin infused liner samples
  - 5 samples to be tested with the shroud
  - 5 samples to be tested without the shroud
- Sample tested in ceiling panel position only
  - Fire resistant board used vertical sample position
Cargo Shroud Round Robin Study
Cargo Shroud Round Robin Study
Cargo Shroud Round Robin Study

• Anticipated outcome of round robin study
  – May incorporate shroud into cargo liner test method
    • Based on round robin study test results
    • Feedback from working group members

• Items to address prior to addition of shroud
  – Update and improve shroud design
    • Eliminate possibility of dislodgement
    • Simplify sample replacement procedure
    • Prevent interference with clamping fixtures
  – Issues found during round robin
    • Based on feedback from participating labs
Cargo Shroud Round Robin Study

• Current status
  – 6 labs have agreed to participate
  – Shroud construction completed
  – Shrouds and test samples are currently being shipped
    • Need shipping info from some labs
  – Looking for more participants
Sonic Burner Seat Cushion Test: Air Shroud Development and Round Robin Study
Seat Cushion Shroud Testing
Seat Cushion Shroud Testing

• Next step for shroud development
  – Adapt shroud concept to seat test method

• Same purpose as cargo shroud
  – Reduce influence of airflow at sample

• Modified cargo shroud design
  – Perforated aluminum
  – Shrouded on three sides
  – Open on flame side
  – Does not interfere with sample mounting
  – Mounted to seat frame with threaded rods
Seat Cushion Shroud Testing

• Current Status
  – Round Robin is temporarily on hold
  – Supply of available test samples insufficient for performing study
  – Need to purchase test samples
  – Still planning to perform study
  – Looking for participants
Sonic Burner Assembly and Operation Instructional Video
Sonic Burner Instructional Video

• Addresses topics not previously documented
  – Burner assembly, air/fuel cooling system, flame validation thermocouples, etc.
• Shooting of video footage completed
• In final stages of editing for release
• Video delayed due to government shutdown
• Viewing planned for task group next meeting
• Final cut to be released before June meeting
• Video will be posted on Fire Safety website

https://www.fire.tc.faa.gov
Questions?

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