



**Federal Aviation  
Administration**

# International Aircraft Materials Fire Test Working Group Meeting

## Discussion on Format of New Test Method “Workbook”

Presented to: International Aircraft Materials Fire  
Test Working Group, Singapore

By: Tim Marker, FAA Technical Center

Date: February 8-9, 2012



## New Appendix F to Part 25

...anticipating ARAC/FAA discussions, the new appendix F will be:

1. Better organized, more simplified
2. Threat based
3. Include new requirements for materials in hidden areas

The latest concept is to keep the new Appendix F general, and refer to a new “Workbook”

Workbook would be patterned similar to present Handbook, and include all revised and new test methods that are presently being discussed

# New Workbook of Test Methods

## Part I In-Flight Fire Threat Test Methods

### A. Radiant Panel Test

1. Thermal Acoustic Insulation
2. Ducting Materials
3. Wiring Insulation
4. Composite Fuselage Structure

### B. Cargo Liner Flame Penetration Test

### C. Fire Containment of Carts

### D. Bunsen Burner

# New Workbook of Test Methods

## Part II Postcrash Fire Threat Test Methods

- A. Heat Release Rate of Cabin Interior Panels (OSU)
- B. Seat Cushion Flammability Test
- C. Burnthrough Resistance of Thermal Acoustic Insulation
- D. Thermal Resistance of Evacuation Slide Materials
- E. Flammability of Magnesium-Alloy Seat Structure



# New Workbook of Test Methods

## General Section on Test Equipment

*Each general section will contain a description of the apparatus, theory, schematics, detailed drawings of the basic test equipment, and part numbers of major components and sources for obtaining them.*

- A. General Description of Next-Gen Oil Burner
- B. General Description of Radiant Panel Test Equipment
- C. General Description of Heat Flux Transducers (Aviation Heat Flux Calibration Std)
- D. General Description for Bunsen Burner??

*The main purpose of the general sections is to reduce/eliminate redundancy, allowing for better initial description of the test equipment.*

# New Workbook of Test Methods

*Noteworthy differences between old Handbook and new Workbook:*

Supplemental Information will be included in an Advisory Circular for each test

Appendix will contain pictures and videos (if possible) in each chapter

Appendix for each test method to include information on recovery testing (i.e., “rogue samples”)

# New Workbook of Test Methods

## *Proposed Recovery Testing (i.e., how to handle rogue sample)*

Test 3 samples. If all pass, hooray!

If 1 Sample fails, test 2 additional samples; both additional samples must pass

This would result in 4 passing samples out of 5 (80%)

If 1 of the additional samples fails, test 5 additional samples, all must pass

This would result in 8 passing samples out of 10 (80%)

# New Workbook of Test Methods

*Noteworthy (anticipated) changes to test methods:*

**Example:** Part I B Cargo Liner Flame Penetration Test:

Change to include the exclusive use of sonic burner

A/C will include testing criteria for seams, joints, fastening systems, light fixtures

A/C will include testing criteria for cargo liner patches, repair

Appendix will include examples of rogue test results, video of sample failure, details on calibration, etc.



# New Workbook of Test Methods

*Noteworthy (anticipated) changes to test methods:*

**Example:** Part II B Seat Cushion Flammability Test:

Change to include the exclusive use of sonic burner

Incorporate lightweight seat criteria

Incorporate testing of leather cushions (how to restrain)

Incorporate testing of inflatable bladders

Incorporate testing of non-traditional materials in place of foam

Appendix will include examples of rogue test results, details on calibration, video of burn-length measurement, etc.