

Radiant Panel Test for Thermal/Acoustic Insulation

Pat Cahill

Engineer, Fire Safety Team

FAA Wm. J. Hughes Technical Center

Atlantic City International Airport, NJ 08405

International Aircraft Materials Fire Test Working Group

Bremen, Germany

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**Federal Aviation
Administration**



General Radiant Panel Information

- Airbus has posted a General Radiant Panel Test Method on the KSN web site.
- We have also written a General Test Method which will be posted in middle June.
- There are just a few differences which will be discussed during the Task Group meeting.
- We are currently in the process of revising the Advisory Circular (AC) 25.856-1



Thermal Acoustical Insulation

- During the last Task Group meeting in Georgia, a question concerning the sample size came up.
- Based on our experience with taped samples, we felt that tape/film samples would be the most critical.
- We chose 12 inch (305mm) and 15 inch (381mm) as the sample sizes.
- During the last two months, we have tested hundreds of 12 inch and 15 inch tape/film samples.
- This testing has shown us that the 15 inch sample is acceptable and the 12 inch sample is too small.
- The following data shows the results of metalized PEEK tape on metalized PEEK film cover over 2 layers of 0.34 pcf fiberglass. The material and tape were supplied by two different manufacturers.



Results

TEST DATA SHEET RADIANT PANEL TEST

Test Method: 14 CFR 25.856 Appendix F Part 6							
Preconditioning: 24 hours minimum at 70±5 °F and 50±% relative humidity.							
Begin:				End:			
Heat Flux Calibration:							
Initial: 1.492							
Recheck: 1.474							
Test Temperature (°F or °C) in test lab and relative humidity: 70°F							
Chamber Temperature (°F or °C) at calibration (start-up):							
Thermocouple: 345°F							
Material Description:							
Metalized PEEK Tape on Metalized PEEK Film Cover							
Specimen	Width (Inches)	Length (Inches)	Thickness (Inches)		After Flame (Seconds)	Flame Propagation (From point of flame application)	Pass/Fail (if less than 2 inches; pass)
1	12 ½"	12"	2"		0	1.25	
2					4	1.50	
3					0	1.25	
4					2	1	
5					0	1	
6							

Results

TEST DATA SHEET RADIANT PANEL TEST

Test Method: 14 CFR 25.856 Appendix F Part 6							
Preconditioning: 24 hours minimum at 70±5 °F and 50±% relative humidity. Begin: _____ End: _____							
Heat Flux Calibration: Initial: 1.492 Recheck: 1.474							
Test Temperature (°F or °C) in test lab and relative humidity: 70°F							
Chamber Temperature (°F or °C) at calibration (start-up): Thermocouple: 345°F							
Material Description: Metalized PEEK Tape on Metalized PEEK Film Cover							
Specimen	Width (Inches)	Length (Inches)	Thickness (Inches)		After Flame (Seconds)	Flame Propagation (From point of flame application)	Pass/Fail (if less than 2 inches; pass)
1	12 ½"	15"	2"		0	1	
2					0	1	
3					0	1	
4					0	¾	
5					0	¾	
6							



Results

TEST DATA SHEET RADIANT PANEL TEST

Test Method: 14 CFR 25.856 Appendix F Part 6							
Preconditioning: 24 hours minimum at 70±5 °F and 50±% relative humidity. Begin: _____ End: _____							
Heat Flux Calibration: Initial: 1.501 Recheck: 1.493							
Test Temperature (°F or °C) in test lab and relative humidity: 70°F							
Chamber Temperature (°F or °C) at calibration (start-up): Thermocouple: 341°F							
Material Description: Metalized PEEK Tape on Metalized PEEK Film Cover							
Specimen	Width (Inches)	Length (Inches)	Thickness (Inches)	After Flame (Seconds)	Flame Propagation (From point of flame application)	Pass/Fail (if less than 2 inches; pass)	
1	12 ½"	15"	2"	0	¾		
2				0	¾		
3				1	1		
4				0	1		
5				1.1	1		
6							



Questions from the Georgia Meeting

- The 3-position check. Covered in the General Test Method
- Draft free statement. Covered in the General Test Method
- Use of another burner fuel.
- Flame profile vs. flame propagation.
- When to put the calorimeter in to the chamber. Covered in the General Test Method
- “Zero” position.



Round Robin

- We will be sending out samples to five independent labs next week.
- Samples consist of metalized PEEK film and metalized PEEK tape.
- A broader Round Robin that will include all labs is scheduled for later this summer.

