Radiant Panel Test for Thermal/Acoustic Insulation

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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

Lect Method	14 CER 25 856	Appendix F Part	6			
			and 50±% relative hu	midity		
	egin:		End:			
Heat Flux Cal						
	Initial: 1.49	2				
	Recheck: 1.47	4				
Test Tempera	ture (°F or ℃) i	n test lab and rela	ative humidity: 70°F			
Chamber Tem	perature (°F or	°C) at calibration	n (start-up):			
	Thermocouple:	345°F				
Material Desc			City Comm			
Metalized P r	EK Tape on M	le talized PEEK	rum Cover			
Specimen	Width	Length	Thickness	After Flame	Flame Propagation	Pass/Fail
	(Inches)	(Inches)	(Inches)	(Seconds)	(From point of flame	(if less than 2
	` ´	. ,	· /		application)	······
1	121/2"	4.011				inches; pass)
	12.72	12"	2"	0	1.25	inches; pass)
2	12 72	12"	2"	0		inches; pass)
2	12 72	12"	2"		1.25	inches; pass)
	12 72	12"	2"	4	1.25	inches; pass)
3	12 72	12"	2"	4	1.25	inches; pass)

Radiant Panel Test for Thermal/Acoustic Insulation





TEST DATA SHEET RADIANT PANEL TEST

F						
	14 CFR 25.856	Appendix F Part	6			
Preconditioni	ng: 24 hours mir	nimum at 70±5 °I	F and 50±% relative	humidity.		
	egin:		End:			
Heat Flux Cal						
	Initial: 1.49	-				
	Recheck: 1.47	-				
			ative humidity: 70	F		
Chamber Tem	perature ("F or	°C) at calibration	n (start-up):			
	Thermocouple:	24505				
	i neimocoupie.	545 F				
Maturial Daga	vintion :					
Material Desc		e talized PEEK	Film Correr			
Metalizeu I E	EK Tape on M	e talizeu l'EEK	rink Cover			
Specimen	Width	Length	Thickness	After Flame	Flame Propagation	Pass/Fail
	(Inches)	(Inches)	(Inches)	(Seconds)	(From point of flame	(if less than 2
	. ,		` ´		application)	inches; pass)
1	12 1/2"	<mark>15"</mark>	2"	0	1	
2				0	1	
3				0	1	
_					-	
4				0	3/4	
5				0	3/4	
6						





TEST DATA SHEET RADIANT PANEL TEST

Test Method: 14 CFR 25.856 Appendix F	Part 6
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Preconditioning: 24 hours minimum at 70±5 °F and 50±% relative humidity.

End:

Heat Flux Calibration:

Begin:

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 1/2"	<mark>12"</mark>	2"	0	3/4	
2				0	3/4	
3				0	3/4	
4				0	3/4	
5				1.2	1	
6						

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TEST DATA SHEET RADIANT PANEL TEST

Test Method:	14 CFR 25.856	Appendix F Part	6			
			and 50±% relative hu	midity.		
	legin:		End:	-		
Heat Flux Cal	ibration:					
	Initial: 1.50	-				
	Recheck: 1.49	-				
			ative humidity: 70°F			
Chamber Ten	perature (°F or	°C) at calibration	n (start-up):			
		24105				
	Thermocouple:	341°F				
Material Desc			-			
Metalized PH	EK Tape on M	le talized PEEK	Film Cover			
Specimen	Width	Length	Thickness	After Flame	Flame Propagation	Pass/Fail
	(Inches)	(Inches)	(Inches)	(Seconds)	(From point of flame	(if less than 2
	, í	. ,		· · · ·	application)	inches; pass)
1	12 1/2"	<mark>15"</mark>	2"	0	3/4	
2				0	3/4	
				1		
3				1		
3 4				0	1	
				0	1 1 1	

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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.

