INTERNATIONAL AIRCRAFT MATERIALS FIRE TEST WORKING GROUP

October 27-28, 2014

Tropicana Hotel-Casino, Atlantic City, New Jersey, USA

MONDAY, OCTOBER 27, 2014 – Meeting Agenda

1:00-1:15 PM	Welcome & Logistics/Introductions
1:15-1:45 PM	Seat Flammability Test, Handbook Update – T. Salter (FAATC)
1:45-2:10 PM	Magnesium Alloy Test – T. Marker (FAATC)
2:10-2:40 PM	VFP Composite Structure/Wiring/Ducting – R. Ochs (FAATC)
2:40-2:55 PM	*Break*
2:55-3:10 PM	Heat Flux Calibration – M. Burns (FAATC)
3:10-3:30 PM	OSU/HR2 Update – M. Burns (FAATC)
3:30-3:45 PM	OSU Round Robin Conclusion – Yaw Agyei (Boeing)
3:45-3:55 PM	Radiant Panel Update – S. Rehn
3:55-4:05 PM	RTCA – S. Rehn
4:05-4:20 PM	Evacuation Slide Test – T. Marker (FAATC)
4:20-4:40 PM	Cargo Liner Test, Handbook Update – T. Salter (FAATC)
4:40-5:00 PM	Flame Retardants/Material Change Similarity – R. Lyon (FAATC)

TUESDAY, OCTOBER 28, 2014 – Meeting Agenda

8:30-8:45 AM	Policy Statement, Item 10 – Michael Jensen (Boeing)
8:45-9:00 AM	Approved Material List – Scott Campbell (Zodiac Aerospace)
9:00-9:45 AM	Test Method Validation and Statistical Analysis Approach – Matt Anglin (Boeing)
9:45-10:00 AM	*Break*
10:00 AM -12:00 PM	Task Group Meetings Session I:

Magnesium Alloy (Ballroom/Salon 3) – T. Marker
VFP Composite/Ducting/Wiring (Pageant Room/Section A) – R. Ochs
OSU & HR2 (Carousel Room/Section A-C) – M. Burns
Seats (Ballroom/Salon 3) – T. Salter
Approved Material List (Pageant Room/Section B) – S. Campbell
Flame Retardants/Mat'l Change Similarity (Carousel Room/Section D-F) – R. Lyon
RTCA (Ballroom/Salon 3) – S. Rehn

12:00-1:30 PM	*Lunch (on your own)*
1:30-3:30 PM	Task Group Meetings Session II:

Magnesium Alloy (Ballroom/Salon 3) – T. Marker
VFP Composite/Ducting/Wiring (Pageant Room/Section A) – R. Ochs
Radiant Panel (Ballroom/Salon 3) – S. Rehn
Cargo (Ballroom/Salon 3) – T. Salter
Policy Statement Update (Pageant Room/Section B) – M. Jensen
Heat Flux Calibration (Carousel Room/Section A-C) – M. Burns
Evacuation Slide (Carousel Room/Section D-F) – D. Do

3:30-3:45 PM	*Break*
3:45-4:45 PM	Task Group Reports
4:45-5:00 PM	Additional Discussion/Next Meeting/Closing

MONDAY, OCTOBER 27, 2014

Seat Cushion Oil Burner Update – T. Salter

Update to current Chapter 7 of the Aircraft Materials Fire Test Handbook: We are currently working on this update. Major addition: includes incorporation of the NexGen sonic burner. Tim gave background of research tests conducted with flame retention head (FRH) vs. stator and turbulator, flame temperature check vs. thermocouples. Tim outlined specifics in his Powerpoint presentation (available at www.fire.tc.faa.gov). Additional items: fuel and air pressure gauges are required to be NIST approved and have an accuracy of +/- 2% or less. The operational pressure range of the gauge should be matched appropriately to the fuel and air pressures of the burner. A 3" diameter by 12" long reticulated foam cylinder is required to be used in the burner muffler. This was originally suggested for the purpose of noise reduction. Deleting the foam can potentially alter the performance of the burner. Industry suggested that the FAA expand the current allowable fuel and air temperature ranges. This is currently under consideration for inclusion in the NexGen burner test requirements. Testing is currently underway.

Handbook vs. Workbook:

The original Handbook describes the certification test method for materials used on aircraft currently in service. The updated Handbook will allow labs to use the NexGen burner for these same tests. Workbook: The new Workbook test method applies to new type designs and differs slightly compared to the Handbook test method.

Seat Rig Modification: The seat rig will be constructed from 3/16 alloy stainless steel to reduce corrosion damage leading to incorrect weight loss measurement. Burner and Sample Rig Mounting. Test Cell Airflow: the Workbook will allow for test cell ventilation airflow up to 100 ft/min in the vertical direction, and up to 50 ft/min in the horizontal direction. Standardized Leather Cushion Restraints: The Workbook specifies the use of 3 preformed 1/8" SS rods placed in specific locations. Bend 1/8" SS rod, and "clip" per diagram in this Powerpoint presentation (shown during meeting).

Questions:

Danker: Why the creation of the Workbook? Marker: we are trying to make these tests better and improved as we introduce this Workbook. Danker: why not just incorporate these changes into the existing Handbook. Hill: there is going to be a new rule. The Handbook as it is now applies to the present rules. In the Handbook we are trying to say you can use the NexGen burner in place of the Park oil burner. When the new rule comes out, you can make changes to make things easier, more stringent, or other. For example, OSU will be HR2 in new rule. Jensen: Why wouldn't we incorporate the leather restraints into the Handbook as a recommended option? Hill: We will do it. Q: will the 1600° flame check go into the Handbook? Salter: If you are using the NexGen burner, yes.
Marker: question relating to the gauges: you want to have a high level of accuracy in the equipment.

Development of a New Flammability Test for Magnesium-Alloy Seat Structure – T. Marker

733 tests completed to date. There has been experimentation with various sample holders. Our goal has been to try to improve the repeatability of this test including: reduce data scatter on "time to burn" measurement; reduce data scatter on "time to self extinguishment" measurement; reduce the data scatter on "weight loss" measurement. Tim showed photos of the various sample holder configurations tested.

The Oil Burner Flammability Test for Magnesium Alloy Seat Structure test is now in the Aircraft Materials Fire Test Handbook (Chapter 25). There are a few changes to the Test in the Handbook that we are currently working on: Removal of temperature calibration (temp check); removal of time for sample to self-extinguish, however, a statement will be included. Future work: impact of spark plug on flame

profile and test results; update Handbook to include new ignition methodology; testing of altered magnesium samples (anodized, powder-coated, etc.); testing of thin magnesium alloy sheet. Gywnne: you were talking about an alternative clamping method – is it something to be included in the current Handbook, or is it just to see where it is and work on it later? Marker: I think it's something for later. S. Campbell: if we have a test when do we have a rule that says we can use this test? When will we have a list of approved alloys? Marker: Well, I don't know. It can be used now in proceeding with Special Conditions. S. Campbell: are you the only lab that does this test? Marker: Two labs do this test - Accufleet is one of them. HP Busch: Is it possible to add a new chapter in the Handbook for equipment only (new NexGen burner) if we can operate with one burner for all the test methods. Marker: there is a legal reason we cannot do that. We originally set out to do exactly as you asked, but for the Handbook, we cannot do that. We are going to take this approach for the new Workbook.

Development of a Flame Propagation Test Apparatus for Inaccessible Area Materials – R. Ochs

Rob provided some background information on this test method. This information was also presented during the June 2014 Materials WG meeting in Switzerland. Rob showed a schematic of the Vertical Flame Propagation Apparatus and provided an explanation of its operation. There are three of these units: one was tested at the FAATC in two different FAATC test labs; one is at Boeing in WA; and one is at Airbus in Germany. Materials were tested in this apparatus at all of these labs/locations. Rob reviewed the overall results of these tests for all the materials tested.

Wire Insulation Testing – R. Ochs

A test rig has been developed to test wires in the Vertical Flame Propagation Apparatus. Summary: Wire test method is feasible in the VFP. Good repeatability was found in the VFP.

Thermoplastic Issues: Unreinforced thermoplastics present testing issues – typically melt under heating and flame impingement. Melted material flows into pilot flame tubes, extinguishing flames. Clogged tubes are very difficult to clean out. We developed a new sample holder for thermoplastic materials (schematic was shown). Apparatus Summary: a method was developed for evaluating flammability of thermoplastics in the VFP – we need to define method for measuring burn length accurately for these types of materials; sheet metal skin on sample door. We did a comparative test series with Boeing – results of these comparative tests were presented. A Wire Test comparison was conducted – results were presented. Flame length/distance work will be done at FAATC. Flame Length Measurement idea was borrowed from Boeing Flammability Lab. Development of Advisory Circular: currently developing guidance material: general VFP Guidance; composite fuselage and structure; ducts; and wire insulation. Input from Task Group members is welcome. Question: do you have plans to give the VFP test apparatus plans to equipment manufacturers to be produced? Ochs: I have all the schematics, so when I get the go ahead from management, I can do that. Question: Has there been any discussion on using the software on the pilot flame in other tests? Ochs: this is something new we have just started working with. That would be determined by the FAATC personnel responsible for a specific test. HP Busch: what about material that is used in electrical systems? Ochs: I copied some of the work Pat Cahill had done and included it into this AC. We can do some additional work on it later. Jensen: I am concerned about this test method. It looks like you have a test method that looks good with a limited set of materials and are trying to spread it out over a very wide scheme of things. Maybe it would be better to look at an MCC for wiring. Ochs: I believe we are going to be able to improve this.

Heat Flux Calibration – M. Burns

Millboards: Heat Flux Gauges (HFG) – Mounting for Calibration: Currently Chapter HF requires HFG's be mounted through 1/2" millboard. Mike reminded attendees of the number of Handbook Chapters that use HFGs. HFG Full Scale Range Criteria: effort underway to reduce the use of HFG's where possible (standard underway).

Future Work: Task Group input requested: use of millboards.

Heat Release Rate Updates – M. Burns

OSU (current Handbook test method for heat release rate): OSU Airflow measurements (FAATC OSU), 2013-14 RR Data; hybrid burner project.

2014 Heat Release Rate Round Robin – M. Burns

Chauvenet's Criterion (Data Filter) was applied – Z Score Summary for Peak Heat Release Rate trend was presented. Mike reviewed the results of Baseline and the samples tested.

Hybrid Burner Project:
6 labs participated. Scope: 1/8" steel rod positioned 5/8" from the upper pilot burner flamelet holes (3/4" from centerline of burner tube to centerline of rod). Purpose: to reduce variability within OSU heat release units with regard to the performance of the upper pilot burner. Support the potential use of this configuration in the HR2. Mike reviewed the questions being investigated in the Hybrid Burner Configuration. Three thermoplastic test coupons were tested. Mike presented comparison results for the samples tested in Standard vs. Hybrid condition. Hybrid Burner Project Summary: easy to install; minimal impact to calibration factor, uniformity and baseline mV values; for FR off –gassing materials: PHRR minimally impacted.

HR2 Update – M. Burns

Two manufacturers are building these units: Govmark and Marlin Engineering. FAATC just received the Marlin Engineering unit. Next: Hybrid Burner: is the bracketry supporting the hot surface ignition rod adequate?

Winn: how did the 6 labs that participated in the RR handle re-ignition? Burns: I asked them not to do anything. That's probably why the numbers were so negative.

2013/2014 OSU Round Robin Conclusion – R. Agyei (Boeing)

Mike recently reviewed a lot of the data from the Round Robin project. We used different methods to analyze the data, but we pretty much came up with the same results. Yaw acknowledged the participating labs. He reviewed the Round Robin Purpose and Why Another Round Robin? Data Analysis: weak or NO correlation observed between test results and any measured/recorded parameters. Correlation observed with Interspace Pressure and other parameters. Round Robin Conclusion: This RR observed variability higher than previous RRs. Correlation observed between the interspace pressure and thermopile voltages. Unit air flow/air flow split = possible major variability factor. Proposed Next Steps: Determine air flow split for all RR participants. Determine change in thermopile voltages for a unit with an air flow split ratio of 3:1. We have started this work at Boeing. Chris Ballew and Theo Spanos have started the Test Plan for this work.

Radiant Panel Update – S. Rehn

Since the last meeting there haven't been many changes to the Chapter RPI. A Test Data Sheet has been added to the Chapter RPI.
Training Video: we have been working on the Training Video. This is the first of the videos produced for various fire test methods. The video will help clarify new Chapter RPI. The script follows along with new Chapter RPI. It will be split into a different Chapter for each section. Radiant Panel Round Robin: we would like to get the next Round Robin started. We'd like to be able to present the results at the next Materials Working Group meeting.

RTCA Update – R. Rehn

Last update was in October 2011 after DO-160G was published. Steve discussed the input he would like to receive from Task Group members during the October 28, 2014, Task Group meeting. Also, Steve would like to see any data Task Group members have collected so far.

Evacuation Slide Test Method – T. Marker

Activities: determination of the radiant furnace input voltage required to produce appropriate 1.5 Btu/ft2 sec heat flux. Comparison of test using 2 furnace calibration methods. Two materials tested.

Determination of Power Requirement to Yield Correct Heat Flux Output was done first. Two methods were tested: Heat Flux Gauge vs. Power Output Test Method on different materials – results were presented. Conclusions: first slide materials passed the tests with both test methods. Second set of materials failed the tests with both test methods. Future work: FAATC will conduct Test Calibrations of several furnaces to compare their power outputs for the slide test. FAATC will run the Slide Test to evaluate the performance of several furnaces, using power output to calibrate furnace. RR 4 will be conducted when participants are ready to use Power Output to calibrate the furnace.

Cargo Liner Oil Burner Update – T. Salter

Handbook Update: the updates to the Handbook will allow the use of the NexGen sonic burner for certification testing of aircraft cargo liner materials. Workbook: backside burning guidance; stainless steel sample rig construction; stationary mounting of the NexGen burner and translational motion of test sample; and test cell airflow measurement. Backside Burning: on-going issue.
Current NexGen Burner Status: testing has shown that the NexGen burner is capable of generating repeatable test results in its current form. The design of the burner is currently considered complete. Interlab studies have confirmed the NexGen burner is capable of repeatable results within a lab. However, there have been discrepancies when comparing the data of one lab to another. The NexGen burner was designed to match the test results of the Park burner as closely as possible. FAA tests have shown this to be a success, while other labs have shown differences in the performance of the NexGen and Park burners. All NexGen burners are the same while all Park burners are unique. Performance of the NexGen burner remains the same, but Park burner performance may vary for each lab. The number of configurations for the Park burner are infinite. Tim came up with 72 possible combinations for the Park Burner with every one of them being different. This is part of what we are attempting to control by using the standardized NexGen configuration. Lab Variables: test cell size, ventilation hood height, ventilation airflow, and unknown variables including humidity, ambient air temperature, barometric pressure, systems components not specified in the Handbook.

Flame Retardants & Similarity of Material Changes – Dr. R. Lyon (FAATC)

This Task Group would be an industry-chaired Task Group supported by the FAA. Rich reviewed FAA Memorandum ANM-115-09 Policy Statement on Flammability Testing of Interior Materials. FAA Initiatives in Flame Retardant Replacements: demonstrate milligram-scale test to measure effectiveness of halogen flame retardant replacements in regulatory fire tests. Support similarity testing of cabin materials. Acceptable Methods of Compliance: at two levels: Configurations and Compositions. 1994-1998 Attempt to Evaluate Similarity of Upholstery Materials in Oil Burner Test Was Inconclusive: Rich found some previous work done by Sally Hasselbrack in coordination with Pat Cahill (retired FAATC). This report was never published, but Rich can provide copies to anyone interested. Using Microscale Combustion Calorimeter: Rich explained how this apparatus works. Goals of Task Group Meeting: appoint an industry Task Group Leader; assign FAA Liaison (Rich Lyon); agree on Scope of Task; Define Objectives; and come up with a Work Plan.

TUESDAY, OCTOBER 28, 2014

Policy Statement, Item 10 – Michael Jensen (Boeing)

Policy Statement, Item 10 – deals with compliance of a panel. Michael discussed the issues with interpretation of Policy Statement, Item 10. We would like to discuss these a bit more in our Task Group meeting today. There are also interpretation issues with Policy Statement, Item 21 that deals with bonding. These are some of the issues that people are dealing with in trying to show compliance. Our goal is to clarify and simplify some of these issues.

Approved Materials Task Group – Scott Campbell (Zodiac Aerospace)

This Task Group was initiated in December 2013. There were 38 attendees from 22 companies at the first TG meeting held during the International Aircraft Fire and Cabin Safety Research Conference in December 2013, in Philadelphia. Scott reviewed the items discussed during TG brainstorming sessions over the last three months. There was some discussion considering development of a database and what would be included and how it would be administered and funded. Recent Discussion Topic: What conditions require flammability recertification? Scott presented UL 76A as Example. The topics for today's Task Group meeting were introduced.

Materials Fire Test Method Development:
Technical Readiness Assessment (Matt Anglin – Boeing)

Technical Readiness provides a maturity level to help define next steps for a development project. Matt presented how NASA TRL could be applied to Flammability Test Method/Equipment TRLs.

Statistical Design and Analysis of Experiments in the Context of FTWG (Yusuf Mansour – Boeing)

Yusuf reviewed an experimental strategy steps and provided some explanation of each step.

A copy of this presentation is available on the FAA Fire Safety website.

Task Group Summaries

Magnesium Alloy TG – T. Marker
Tim Marker provided the following highlights from the Magnesium Alloy Task Group Meeting.

Task Group Report for Magnesium Alloy Flammability Test

Task Group participants discussed the clamp-style sample holder designed by the FAATC. The participants agreed there are obvious benefits to using this type of holder, which greatly reduces the amount of time required to change out samples following a test. The holder also allows for the three main functions: elongation of sample during heating, prevention of sample rotation after melt-through, and accommodation of various thickness samples.

Participants agreed that the use of the igniterless stator with a "spark-plug" igniter mounted in the burner cone provided outstanding results. The results include a uniform flame profile, and excellent correlation to previous results when using the igniters mounted inside the burner. This configuration is easy to set up, requires very minimal cost/components, and eliminates the problems associated with the internal igniters and igniter wires (i.e., asymmetric flame profile).

The participants discussed the status of SAE AS8049, which is the standard referenced in the FAA Technical Standard Order (TSO) for aircraft seat construction. Paragraph 3.3.3 of the standard states, "magnesium shall not be used" in the construction of seat frames. This has been the primary obstacle for using magnesium alloys in the construction of seat frames. One of the participants, a long-standing SAE Seat Committee member, described the process for modifying existing SAE standards. All standards are periodically reviewed, and if interest is high

enough, the standard can be brought to ballot. It is anticipated that AS8049 will be brought to a ballot in January, and voting will then follow to change the wording of the current paragraph banning the use of magnesium in seats. This voting process can take many months, but it is anticipated the wording will ultimately be changed to reflect the findings of the FAA and the development of the new flammability test.

The participants next discussed the use of magnesium alloys in other areas. This is essentially 2 broad areas of discussion: 1) the use of magnesium in the construction of other seat components, and 2) the use of magnesium in all other areas of the pressurized cabin. In terms of other seat component applications, the new magnesium flammability test recently inserted into the Aircraft Materials Fire Test Handbook lists the 5 primary seat components that the flammability test is intended for (legs, spreaders, cross tubes, seat back frame, and lower baggage bar frame). These 5 primary components were evaluated during full-scale testing conducted by the FAA. Participants discussed the possibility of also using magnesium for other similarly-constructed seat components, for example tray table arms. The argument is that the tray table arms, and possibly other components, are largely similar to the 5 primary components initially studied in the full-scale test, and should not be precluded from fabrication using magnesium. The FAA's position is that some additional use of magnesium would be acceptable, but it must be limited so that the entire seat, including very small parts, cannot be fabricated of magnesium alloy. The FAA's concern is that small and thin parts may be more easily ignitable than the primary components, and were not considered in the full-scale tests. The FAATC suggested (at the previous IAMFTWG meeting) that surface area-to-volume (SAV) ratio would be a reasonable concept for limiting the use of magnesium to certain components. Basically, the higher the SAV ratio, the more easily ignitable the component is. The FAATC tasked industry to gather information on the SAV ratios of typical primary components, so that target criteria could be investigated. The FAATC renewed that task during this discussion, and will await information from industry participants.

The participants then discussed the potential use of magnesium alloy in other cabin areas. This was a much more broad discussion area, since there are so many possible applications. These applications can be broken down further into 2 main areas: 1) components located in areas readily accessible with a handheld fire extinguisher, and 2) components in inaccessible areas. It is possible that readily accessible components could be treated similar to the seat components (i.e. using the SAV ratio as the determining criteria). However, components located in inaccessible areas would need to be investigated further, particularly thin components that could potentially be ignited from an electrical arc. To that end, the FAATC and Magnesium Elektron agreed to conduct initial testing on two types of thin sheet (poor-performing AZ-31 and well-performing Elektron 43). The FAATC is in the process of obtaining electrical arc generation equipment previously used in a study of contaminated insulation blankets. The FAATC anticipates having the equipment functional by the end of the calendar year. The FAATC also agreed to test some thin magnesium sheet material in the oil burner, to determine typical weight loss. One other related item was the planned oil burner testing of anodized and powder-coated magnesium alloy samples. This was an action item agreed upon at the previous meeting that was not completed, due to the FAATC not receiving the test samples. The FAATC renewed its offer to test these components when received.

Lastly, the FAATC confirmed it will continue updating and refining the new flammability test for magnesium alloys, and proposed conducting an interlab ("Round Robin") study to determine the reproducibility of results in other labs. The FAATC offered to fabricate clamp-style holders to supply interested labs with, to ensure commonality of testing equipment. The FAATC encouraged interested parties to set up the test equipment and become involved in the interlab study.

VFP Composite/Ducting/Wiring TG – R. Ochs

Framework for the future: evaluate the pilot flame sample distance to increase the repeatability. We are going to evaluate a new burner. We have the software for our flamelet length mechanism. Thermoplastics: we received a lot of feedback from the TG. Two of the companies will submit thermoplastic materials and come to the FAATC for testing. AC: a draft Word document that will look similar to the AC will be shared with Task Group members via a file sharing program for comments. We are going to do some changes to make the apparatus better for use in a lab – move the door in to keep smoke entering the lab room.

RTCA TG – S. Rehn

The two participants will go back and see if there is more interest.

Radiant Panel TG – S. Rehn
We discussed the changes that were made in Chapter RPI of the Handbook, and we discussed the possibility of running a Round Robin. It was decided we need the dimensions of each participating lab's equipment. We will send around the test video when it is finished.

Seat Test TG – T. Salter
Tim Salter provided the following highlights from the Seat Test Task Group Meeting.

It is critical to use NIST (or equivalent) approved gauges with an accuracy of +/-2% or less for the burner to operate as intended. Slight changes in air flow can have a significant impact on the outcome of the test. It was suggested that a tool or method be developed that will insure proper alignment of the fuel rod in the burner. The FRH (flame retention head) is sensitive to an offset fuel nozzle spray. Test chamber design and ventilation airflow is currently being researched. Round robin studies have indicated that test data differences among labs are likely not due to the sonic burner, but rather differences in the testing environment.

Cargo Test TG – T. Salter
Tim Salter provided the following highlights from the Cargo Test Task Group Meeting.

It was recently discovered that the recommended muffler supplied by McMastercarr has changed in design, while the part number has remained the same. It was suggested that a different supplier be found that is less likely to make changes to their products, which would lead to burners being different among test labs. Also, foam inserts for the muffler are now a requirement for sonic burners instead of a suggested part. Cone warpage continues to be a subject brought up at task group meetings. It was suggested that an alloy known as Hastelloy be used to construct the cones. This material may be less likely to deform when heat cycled when compared to stainless steel.

HR2/OSU TG – M. Burns
Mike Burns provided the following highlights from the HR2/OSU Task Group Meeting.

HR2 / OSU: Task Group Updates

Hybrid Burner Project:

- During the task group discussions we reviewed the test plan with all in attendance.
- Labs who participated in the Round Robin were satisfied with the positioning of the rod within the 15 pilot flames (distance from burner tube). Labs were also very satisfied with the performance of the device.
- 4-Corner uniformity, Calibration Factor and Baseline mV Data will be presented at the March Materials meeting.
- There was input from the group to improve the design of the side brackets to include a better locking feature to help secure the rod in position.
- A suggestion was made to include 1 inch 90 degree bends on each end of the rod for lateral alignment and support.

Upper Pilot Tube:

- Input from the group to better define the fabrication process of the upper pilot burner tube (burr-free). The desire is to have equal flame lengths across all 15 holes. Wording will be added to Chapter HR to address this issue.

- Input from the group to better define the Methane/Air flow settings (not relying on visual appearance of the pilot flames). Wording will be added to Chapter HR to address this issue.

- Input from the group to better define the guidance on keeping the hybrid burner rod free of soot and periodic replacement (Burst of shop air or replace with new). Wording will be added to Chapter HR to address this issue.

- Lower Plenum Pressure / Airflow

    - The group would like to see data comparing pressure measurements (Lower plenum / interspace) between the HR2 and the OSU (At FAA Tech Center) and mass airflow values.

Use of Sample Holder Drip Pan (HR2)

The group would like to add the requirement to Chapter HR to harmonize the use of the drip pan. The sample holder drip pan be required for all specimens tested. The drip pan may be clipped on or permanently attached (Similar to NBS sample holders).

Heat Flux TG – M. Burns

Mike Burns provided the following highlights from the Heat Flux Task Group Meeting.

- HEAT FLUX: Task Group Updates

  Millboard:

    - During the task group discussions the use of Millboard (or refractory material) was agreed upon not to be used when mounting HFG's for calibration. The suggestion was made to gather additional data (at Tech Center) to help support this decision.

Evacuation Slide TG – D. Do

Dung Do provided the following highlights from the Evacuation Slide Task Group Meeting.

Evacuation Slide Working Group members didn't attend the Task Group Meeting.
Two people (not Task Group Members) attended the Task Group Meeting.
They were interested in learning about slide.

I explained to them the comparison test and the test results of the Power and the Standard Test Methods;

- One Test Method is The Standard Test Method used the Calorimeter to calibrate the Furnace,
- The second Method is The Power Test Method used the Power output to calibrate the furnace

I showed them the drawing of the power test set-up.

Policy Statement Update TG – M. Jensen

The Task Group members would like to see the ACOs attend these meetings. We went through the Policy Statement and noted things we would like to clarify for the future AC that will replace the Policy Statement: color thermoplastics, PS to be applicable to some of the Bunsen burner tests. Policy Statement, Item 10 was discussed. PS 13 and PS 14 were discussed. There are a number of clarifications for PS 21. PS 23 and 24 also need clarifications.

Approved Material List TG – S. Campbell

Scott Campbell provided the following highlights from the Approved Material List Task Group Meeting.

The Approved Materials List Task Group met and discussed the following:

- We agreed to stick to simple monolithic materials such as thermoplastics and other material constructions that are used "as received" with out adding paints, coatings, decoratives, etc. This could apply to supplied bare sandwich panels that are used as received.
- Further discussed the UL model vs other models such as SAE. Action for Ralph Buoniconti and I to contact both for rough cost estimates for different options (full UL/SAE process vs. our task group defining a specification and UL/SAE managing the database process of listing, recurrent testing, and possible delisting).
- Discussed cost structure- Current UL system has the material manufacturer bear the cost of listing. Most large thermoplastics manufacturers are already familiar with this process.
- Test labs- One thought to narrow down to a few Airbus approved independent test labs. Is it possible to include labs in Europe and US for this process (FAA to help answer).
- Consideration- Do we want straight qualification to the existing requirements or add margins to our specification (55/55/180)? For Bunsen burner- establish margins for continued compliance?
- Determined that manufacturer's part numbers would be required to add the the AML- not industry specifications (though can be referenced).
- Potential benefits: 1/ Approved materials available to a wide source of users 2/ AML could be included in other specifications such as TSOs,etc. 3/ Materials are certified and monitored for continued compliance by one source vs, 100+ industry users.

Flame Retardants/Material Change Similarity TG – R. Lyon

In Dan Slaton's absence, Rich Lyon covered the TG. About 25 people attended this meeting. There is some confusion about approach to address the issue: chemical composition – MCC is ready to go for this, but MCC is not ready for other analysis. Level 1 is chemical composition in MCC. The TG is working on its mission statement. Later we will come up with objectives and a work plan for this mission statement.

Additional Discussion – T. Marker

Differences between Handbook and Workbook are a main concern. Dick Hill will speak to that now.

Dick Hill: We are trying to make the NexGen burner as a replacement for all test methods that use oil burners. We are also trying to eliminate heat flux transducers by trying to come up with other ways to set the heat you are applying in these tests. Workbook vs. Handbook – new rule: the FAA is progressing towards possibly proposing a new rule to replace Part 25. We are trying to make the test methods as repeatable and reproducible as possible. Since it will be a new rule, we can change/add/update the current test methods. The Handbook is an appendage to the present rule and will be used probably for the next 50 years, because when you change Part 25, it only applies to newly certificated aircraft after that date. In the Handbook, the test methods are showing equivalence to the rule. The Handbook contains what is shown to be equivalent to the rule. We are trying to include the sonic burners into the Handbook to show equivalence to what is in the rule. Campbell: are you looking into eliminating the transducer for the smoke test like you are for the slide test? Hill, no we are looking at eliminating the smoke test. J. Smith: shouldn't we be comparing these new test methods to the intermediate tests? Hill: we are in de facto doing that. There is not one absolute gold standard. You need reproducible, repeatable consistent design standard. The old data that people have is longer going to comply. For example: Oil burner vs. sonic burner: sonic burner is being designed to be equivalent to the Park but be more repeatable and reproducible. We are trying to make the sonic burner as good as we can to be equivalent to the Park.

Next Meeting:

February 24-25, 2015: Huntington Beach, California
Hosts: Boeing-Long Beach & Zodiac Aerospace-Huntington Beach

June 3-4, 2015: Bremen, Germany
Host: Airbus -Bremen