INTERNATIONAL AIRCRAFT MATERIALS FIRE TEST WORKING GROUP MEETING

March 6-7, 2013

Held at Boeing Commercial Airplane Group, Renton, Washington

WEDNESDAY, MARCH 6, 2013

Task Group Session on Revised Cargo Liner Test – T. Salter (FAATC)

Baselining of Park Burner
Alternative Air Supply Plumbing: FAA's sonic burner uses hard lines for fuel and air supply plumbing. Currently, the distance from test chamber floor to exit plane of the burner cone: FAA Park: 54", FAA sonic: 53". Tim showed photos of two configurations: one allows burner to be lowered by approximately 8 inches. He explained the details of the two configurations that were tested. Flame retention head: eliminates the need for the stator and turbulator. It fits on end of burner draft tube with minimal modification.

Cargo Sonic Burner Round Robin – T. Salter

Three labs are currently participating in this Round Robin. Tim reviewed the materials being used in this Round Robin. We are currently looking for additional labs to participate – if you have a sonic burner and would like to participate, please contact Tim. Planned Activities: research effects of test area size as well as type of air ventilation, future round robin using flame retention head. L. Bennett: what type of material do you have in the muffler? T. Salter: reticulated foam. We want to go back and take a closer look at it. Roudebush: what about the calibration of the seven thermocouples – did you do any comparison of these? T. Salter: I didn't see a huge difference in those. These temps were similar despite the temps from the backside measurements being so different. The subject of thermocouple degradation has been an issue, size of test cell, heat radiating out in a smaller test cell – this is why we've moved on to the flame retention head. Roudebush: no heat flux testing? T. Salter: no. Jensen: did you record the temperatures and humidity at the three labs? T. Salter: We did not do this for the round robin. When I did a brief study on this in the past, I did not see a correlation. P. Busch: Do you think it would be a good idea to use more calibration thermocouples on the backside, also? T. Salter: I could look into this and see if other labs would be willing to test this as well.

Cargo AC: Components of AC Presentations – Will Eidsmore (Boeing)

Cargo AC – 25.855(c): Will presented topics that have been discussed: fixtures (horizontal/vertical), boundary condition (joint geometry) test methodologies, standardized test configuration for cargo liner joints, materials: metals, fiberglass laminates, finishes, decoratives, fastening systems, feature test guidance: abstraction of a design to a simple test, test exclusion areas, backside temperature, and liner repairs. Jensen: has the team looked at eliminating corner tests? Can we look at eliminating corner tests? Will: As far as I am aware, we hadn't discussed that. In some instances, I think it is very beneficial to have a corner – i.e.: honeycomb – shields aluminum support. We can discuss this further. D. Slaton: There was a lot of discussion on this in the ARAC, so Dick Hill suggested bringing everyone together to put this AC material together.
Dick Hill: The FAATC is going to add into this AC the NexGen burner. We will put together some introductory words on where the test method came from. The 400° on the backface was a temp that made sure that the material wasn't too porous. 400° has been generally accepted. The air in a small chamber can affect the test. The FAATC will look over the material this group comes up with and may have to run some tests, etc., and once material is ready, send it to Jeff Gardlin at FAA Transport Directorate.

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

Tim provided a brief history of this work. In spring 2012, we decided on horizontal bars for this test and began refinement of horizontal bar test and test configuration. First: we set out to eliminate residue measurement. We went with measuring weight loss and found there was no advantage of running thicker samples (i.e.: .5" and thicker). .250 inch bars gave us better repeatability. 138 additional tests have been conducted since the October 2012 Materials WG meeting and a draft test method has been completed. We have conducted our first Round Robin. Tim has started working on report on the test method development since the October 2012 meeting. Tim reviewed the tests completed to date – various alloys tested. Tim showed all the data on the .250-inch thickness materials tests so far. Charts showing burner calibration temps during Round Robin were shown. There seemed to be a correlation between the calibration burner and the extinguishment time – keep in mind this is a very small sample set since only three labs participated. Systematic development of Lab-Scale Test: Tim reviewed all the components of this process over the past 3 or 4 years. Lab ventilation configuration: I think it plays a part in test. Tim showed air flow diagrams for FAATC lab A and FAATC lab B. He would like to run an additional Round Robin and would like additional labs to participate. The Full-Scale report is on the FAA Fire Safety website in the Reports Section. S. Campbell: Will the report include alloys you have tested that passed? Can the alloys that have been tested be QPL'd? T. Marker: I don't have that confidence level yet to say that, for example, all WE43 mag alloys are acceptable. B. Gwynne: I think you have to qualify your supplier and your material. From what we have seen, it's only universal to a degree. M. Jensen: I think Scott is talking about a very specific supplier with the same exact material. For the exact same material that has already gone through hundreds of tests, what is the need of repeating that testing? H. Nuessel: Do you think it is worthwhile to discuss the lab ventilation in the other test Task Groups as well? T. Marker: It could be. It was an eye-opener for me. I think it's a big player in this. D. Hill: For the future, we want to get the tests as repeatable and reproducible as we can, but do we want to put something out there for tests being conducted now? Where do we draw the line? I don't want everyone to have to wait for the AC. P. Busch: Will the magnesium alloy test specimen shape be linked to the design actually used in the aircraft? T. Marker: We've done a full-scale and a lab-scale test. D. Hill: It is going to be limited to certain components on seats which minimize the design affect. We don't foresee that the design of those certain components on aircraft will be radically different. We are trying to be practical. P. Lyon: With the ventilation concerns, were the results similar for the three labs. T. Marker: the results for FAATC lab A and the Accufleet lab were similar but FAATC lab B was slightly different.

NexGen Burner Comparative Testing – R. Ochs

Objectives: perform comparative burnthrough testing to determine the effect of various parameters on test results: picture frame sample holder and PAN material. We did a correlation between burnthrough and peak velocity. Nozzle comparison: the spray nozzles tested compare reasonably well with baseline Monarch nozzle. Some are within 1 standard deviation, the rest are within 2 standard deviations of baseline. New work: fuel type comparison – we have been working on this at FAATC since the October 2012 WG meeting. One variable that cannot be controlled is the type of fuel used for the burner. November 2012: JP8 vs. diesel comparison. We noticed that diesel creates a lot of soot. JP8 vs. K1 Kerosene – tested 2 months after diesel comparison. Fuel Type Summary: diesel was by far the most severe.
NexGen burner Round Robin: interest from 6 labs. This will be a two-part test series. Krieg: how do velocities correlate to pan fires? Ochs: We don't have any data on it. D. Hill: The variation you are going to get in a pan fire in velocities will be within the range. It's more about getting something that is repeatable and reproducible. The variation is not that great when compared with a big pool fire. D. Erb: What was the sample set? Ochs: For each configuration, 4 - 8579s and for 4 - 8611s were tested. In June 2013, Rob will present new PIV data.

Composite Flame Propagation Update – R. Ochs

Status as of 10/2012: a variety of materials were tested on the Gen 3 apparatus. What's New: heat flux transducers were removed to simplify calibration of device. Thermocouples were installed in test frame in same locations as HFGs. A photo of the current apparatus configuration was shown. Thermocouples swing out of the way to open door, can be used to measure backside sample temp during test. What are the thermocouples measuring? You have to think about what is going on in the apparatus. Repeatability Testing: a series of tests was conducted; Glass-Epoxy T1 Backside Temperatures graph was reviewed. ACF1 16 ply T2 Backside Temperatures graph was reviewed. A series of four tests of each of those samples was run, and the repeatability was not where we want to get it. Test Results – Burn Length: overall, mean burn length shows that G-10 tends to propagate more than ACF1. Consistency is not there yet. Next Steps: need to improve repeatability, improve room and environmental effects, thermocouples used to show steady state initial conditions, possible material effects, attempt pre-mixed pilot flame – similar to NBS smoke chamber. We've started a side-by-side construction of two additional units to determine apparatus reproducibility. D. Slaton: You showed where the pipe from the hood into the upper pipe into the room – is there a plan to develop an airflow value rate for this? Ochs: Yes, at some point we'll do a study on that. P. Busch: Power - voltage. Ochs: You can calculate your power in watts. Eidsmore: where does this apply? Ochs: Developing a test method for structural composites - not so much interior composites. L. Bennett: You are using AC power? Ochs: Yes. D. Erb: Is there a control of the inflow air? Ochs: It's got a 2-3" inch height under the chamber, and right now it is open at the bottom. D. Hill: The materials we are using may not have the type of quality control that aerospace materials would have. We have requested materials and not received them and have tried to buy materials and can't get them because we are told they are proprietary. If you want to see a better test, make it so we can obtain them.

Flame Propagation Evaluation of Composite Materials – R. Andrade (Boeing)

Test Method Development Overview: FAATC has been developing new proposed requirements for non-accessible areas. Ricardo presented a comparison of the various test methods. Tests conducted as part of this work: foam block, vertical radiant panel test, 60-second Bunsen burner. Graph of VRP, 60-second BB, and foam block tests results were shown. P. Cahill: Did you use the standard burn length definition to determine burn length? Ricardo: Yes, but it was very difficult to tell even after wiping soot from test coupons. P. Busch: Did you discuss these results with the FAA already? If yes, how did they answer your question regarding the fire source foam block? D. Slaton: We ran a number of these tests at the FAATC, so Rob saw the results of those done at their facility. Ricardo has presented some general questions for the Task Group to discuss. The block of foam test was never meant to be a standardized test – it is meant to be a general scenario. It was meant to be an average of what a block of foam would show.

Heat Flux Calibration Task Group – M. Burns (FAATC)

Mike tested a number of paints on the face of the calorimeter. Summary/conclusion: each gauge average dry paint thickness was within the range of 1.0 +/- 0.3 mils. Dry thickness gauge posiTest DFT. All paints were easily removed using acetone (even after 5 hours bake time). It is very important to maintain the condition of the gauge so the emissivity is not changed. Task Group Discussion: develop two part conformity check list to support new Chapter HF – assist calibration entities/certification officials validate conformance to the document. Part I: equipment/specifications/dimensions; Part II: data acquisition/paint.

OSU & HR2 Updates – M. Burns (FAATC)

OSU Wet Test Meter Discussion: Mike reviewed some notes on preparing the meter for use: level (bubble exactly centered). Avoid contaminants from entering the meter. Distilled water recommended. Slight over service meter above pointer tip. New water or gas bottle: minimum 1 hour. Routine calibration: 10 to 15 minutes prior to. Disturbance/Hesitation observed when in use?: normal occurrence

at 4 different intervals during one complete revolution of drum. Use stop watch as recommended to calculate actual flow. If MFM/MFC used must be referenced to wet test meter (WTM). Leak check often. OSU Air System Pressure Data: Factors that May Influence System Pressures: Piping: distance between orifice plate and unit, number of bends. Orifice Plate: residue buildup on opening/incorrect diameter, ¾" hole with rounded edges (should have square profile), leaks: flange/plate/fittings/pressure tubing. Lower plenum: poorly sealed thermopile wires. Air metering plate/cooling manifold: poorly sealed, residue buildup on holes/ incorrect diameter. OSU Standard Operating Procedures: during Task Group meeting on March 7, this will be discussed. Mike highlighted a number of items on this topic for discussion.
Chapter HR Update: When calculating the total heat release, only positive heat release values are included in the summation. Chapter HR Task Group Discussion: standardize drip pan use. Standard reference panel research. Future Work: develop pre-checklist for future OSU Round Robin, develop two part conformity checklist to support new Chapter HF. Jensen: Did you consider VHT paint (silicone to ceramic paint for very high temperature coating)? M. Burns: No.

A Statistical Approach to OSU Variability Reduction at Boeing – B. Grogan (Boeing)

In 2010, Boeing began a project to better understand the variability between their three OSU machines at two labs. The Boeing Flammability team identified 69 variables. Key variables included: sample position within the burn chamber, machine insulation, calorimeter, airflow through chamber. Design of Experiments (DOE) involves the active, systematic, and controlled change of process inputs to induce and observe their effects on process outputs. This approach was taken by Boeing in investigating their OSU variability. Results after many iterations of DOE's: understanding of impact of key variables, and how to control them; standard work instructions created to control 'standardized' parameters – Daily Startup Checklist, Maintenance, Checklist, process instructions. The project continued for approximately one year. At the end of the year: decreasing trend in standard deviations show reduced variability. Ongoing testing to monitor OSU performance based on documented, standard procedures for setup, operation, and cleaning.
Applying Boeing's Approach to 2012 FAA OSU Round Robin: side-by-side plot shows a substantial body of data, with clearly variable data. Each lab operated based on its normal practices. Conclusion: the statistical analysis identifies several equipment/setup parameters that significantly affect variability: machine type, blower vs. compressor, gas pressure. Recommendation: conduct another Round Robin (5-10 machines) with a more focused approach controlling the parameters (i.e.: specific air pressure, etc.). Use this standard approach in development of HR2 documentation. J. Davis: It appeared that fifty percent of the variability was unexplained in the Round Robin results. What percent was unexplained in the Boeing labs? B. Grogan: I think it was about the same.

Radiant Panel for Insulation – P. Cahill (FAATC)

Round Robin Final Results: 27 labs participated in this Round Robin, however, one lab had problems with their samples. Pat showed results of the sets of samples tested. Set points and chamber temperature: possible reasons low controller SetPoints and high chamber temperatures, and vice versa (as reported by participating labs): actual location of the chamber thermocouple, aging panel, degrading thermocouple in the well (back of panel), and placement of the thermocouple in the well. Task Group Talking Points: need for future Round Robin? If so, what should be evaluated? Are there any problems that need to be addressed? D. Slaton: What are the next steps to finish the analysis of the Round Robin data? Referring to Sample "P" where about half labs passed the sample. Are you going to talk about what to do with the data and putting a plan in place during the Task Group meeting? P. Cahill: Yes.

Wiring Test – P. Cahill (FAATC)

Reviewing Sleeves and Heat Shrink Tubing: Sleeves: we made the decision to use copper tubing as the non-combustible core for sleeves and heat shrink tubing. Pat showed videos of wire tests. Under Investigation: radiant panel oriented vertically in small chamber; we will begin evaluating wire samples in this chamber; this test method is going to be evaluated for this application and this evaluation should not

be interpreted as a planned change in test method. The current wire test performed in the standard Radiant Panel Test Chamber is the test method we are focusing on. Jensen: Have you tested ribbon cable with this test method? P. Cahill: John Reinhardt did when he had this project. I have not.

Seat Cushion Test Method Update – T. Salter (FAATC)

Flame Rentention Head (FRH): eliminates the need for the stator and turbulator, not very expensive. Extremely low variation of temperature. Less than 1° F variation of averaged temperatures. Initial tests show that increasing air inlet pressure tends to increase percent weight loss. We are currently testing different air pressures, fuel nozzle spray patterns, and internal burner settings. Further testing is required before conclusions can be made regarding its inclusion in seat cushion flammability tests.

Leather Cushion Restraints: Items to consider: number of restraints, type of restraints, spacing of restraints. Handbook: contains a recommended method of leather seat restraint. The subject of standardizing leather seat restraints will be revised after development/testing of FRH. Round Robin Update: Round Robin ongoing since April 2012. Current Seat Burner Settings: sonic burner settings using stator and turbulator were presented. Data from the Round Robin for Fireblock cushions, Dax, and Airflex cushions was presented. A weight loss percentage comparison graph was shown. Thermocouple Calibration: looking further into TC degradation and changing temperature readings. New calibration unit recently arrived at FAATC. Further testing planned to reduce or eliminate the problems associated with this problem. Planned Activities: attempt to complete current RR, continue development of FRH including an FRH RR, finalize leather seat restraints, and thermocouple degradation. Tim emphasized importance of aligning the burner correctly. D. Erb: Fire barrier seat test: Could the fireblock layer be considered a two part system? T. Salter: yes, you could view the fireblock as a two part system. I see a wicking effect with the polyurethane foam melting and seeping into the fireblocking layer creating a wicking effect. Question: are you thinking of coming up with a tool or something to help ensure labs align/position burner correctly? T. Salter: I am thinking about this. L. Bennett: We have min temps for the thermocouples in the Handbook. If your thermocouples are 50 degrees lower over time, your test is becoming more severe? T. Salter: These thermocouples may be seeing more damage than some in other locations. Is it burn related or is it thermocouple related? Q: have you considered there may be a seasoning effect to the thermocouples? T. Salter: yes, definitely. J. Davis: Is there fluid in the well of the calibration device? T. Salter: It is a dry well. L. Bennett: have you done any studies with grounded vs. ungrounded? T. Salter: I don't know exactly the effects of it. I don't know that it has been pursued any further. D. Hill: Check out the University of Cincinnati presentation from two or three Systems meetings ago on the FAA Fire Safety website. It covers some of these questions.

Seat AC – D. Hill (FAATC)

Eventually we will relook at the Seat AC. If you are interested in the seat test, take a look at the current Seat AC and mark it up (what areas have to be improved upon, what areas are missing, leather, lightweight cushions, clarifications needed) and send it to April (april.ctr.horner@faa.gov). The sonic burner will also be included in the new Seat AC.

EASA Certification Memorandum on Flammability Testing of Interior Materials – J. Gardlin for E. Canari

EASA's requirements for flammability basically mirror the FAA policy. EASA issues Certification Memorandum in lieu of Policy Statements. They are in process on a Certification Memorandum expected to be available on EASA's website at the end of April 2013.

THURSDAY, MARCH 7, 2013

Task Group Summaries:

Magnesium Alloy Task Group Summary – T. Marker

Air Feed Discrepancy. During the Task discussion, Jim Davis noted that the main burner (Lab A) used in the development of the magnesium test standard at the FAA Tech Center is configured with the air feed entering from the side prior to making the 90-degree turn and feeding the burner. However, the draft test standard indicates the air feed should enter from below before making the 90-degree turn. The Task Group participants agreed that one configuration should be chosen to maintain correlation. The FAATC has agreed to change their burner feed configuration for uniformity. Despite the difference in feed configuration between labs during the round robin, the test results were favorable, indicating a robust test.
The Use of Talc in the Catch Pan. This topic was discussed, and the general consensus is that talc use should be continued, to prevent splashing of molten pieces during testing. The FAATC has conducted limited testing showing the difference in results when using talc compared to using a fire proof board (Kaowool) or other hard surface in the catch pan. The FAA recommended reducing the level of the talc to a depth of ¼" to minimize "pocketing" and the insulating effects of the talc. Experiments have shown that an excessive talc level has a tendency to assist in sample burn duration. In addition, Bruce Gwynne discussed the importance of the dryness of the talc, and will prepare some cautionary language on talc use that will be added to the draft test standard.
Sample Surface Preparation. A limited amount of testing indicated that there was no cause/effect on test results based on how the surface of the sample was finished (i.e., course, machine finish, or highly polished). Bruce Gwynne agreed to develop descriptive language on how the sample should be finished, for inclusion in the draft test standard.
Ventilation in Test Cell. After reviewing the results of the round robin tests conducted at the FAATC, it became evident that something other than the burner appeared to be influencing the test results. The FAA suspects the ventilation in the test chambers plays a key role. The FAATC will continue to study the issue and conduct limited testing using additional samples of AZ-31. The FAATC will also experiment with blocking off the air in the burn area of Lab B in an effort to prove its theory. The goal of the experimentation is to establish a minimum area of undisturbed air adjacent to the test sample burning location, to minimize impacting test results. The results will provide the basis for a recommended test area ventilation maximum that can be included in the draft test standard.
Temperature inTest Chamber. One participant indicated there should be an established temperature range in the test cell area, to limit extreme temperatures after repeated testing. The extreme temperatures could lead to erroneous test data. The FAA concurred and will propose an appropriate test chamber temperature range, to be included in the draft test standard.
Weight Loss. Task group participants agreed that a more accurate description of how to measure weight loss is needed. In particular, a description of how the test sample oxidation should be removed from the test sample is very important. Peter Busch also made a suggestion of using a mesh screen under the layer of talc that could be used to pull out the molten pieces of sample. The FAATC will experiment. The FAATC also recommended limiting the capacity of weight scale used in the test, to increase the level of accuracy.
Data Recording and Spreadsheet. Initially, the FAATC recorded many parameters during tests, such as melt time, ignition time, burn time of sample, burn time of molten residue, extinguishment times, weights before and after, etc. This is cumbersome and difficult for the tester, often requiring more than 1 individual. The Task Group participants and the FAATC

agreed that only 3 parameters needed to be measured: sample ignition time, sample extinguishment time, and the before/after weights of the sample (including the molten residue). However, more descriptive language is needed to describe the ignition time (what it looks like) and self-extinguishment time (what that looks like). FAATC offered to record a video of both the ignition and extinguishment activities for a couple of different samples, and include a time stamp to illustrate its interpretation of each. The video could be captured on a DVD and circulated to interested participants. **Additional Round Robin**. Task Group participants felt this was a worthwhile activity. What other labs would be interested in participating in next round robin? A show of hands indicated at least 3 additional labs (total of 6) would be available to participate. The FAATC will explore the option of having several sample holders fabricated to expedite the process. Contact Tim Marker if you want to participate in a magnesium alloy round robin.
Finalizing Pass/Fail of Test. Several participants recommended a slight relaxing of the FAATC's proposed pass/fail criteria. The participants felt that a self-extinguishment time of 4 minutes after turning off the burner would be better than the present proposal of 3 minutes. Similarly, they felt the allowable weight percentage loss should be 10%, not 6% or 8%. The participants claimed that by relaxing these 2 pass/fail criteria, it would better ensure passing the good materials, while still not allowing any inferior materials to pass. The FAATC agreed to consider this proposal.
Completion of Report on Test Method Development. The FAATC indicated it is looking at the end of summer 2013 for completion of this report. It is anticipated that this report would be the primary vehicle for implementing this test method into the present-day Fire Test Handbook.

Cargo AC and Burner – D. Hill

Repair – all repair work be taken out of AC and be left in Handbook Ch 15, but after discussion, it was decided to keep the repair part in the AC and eventually Ch. 15 will be taken out of the Handbook once the AC is released.
Difference between a new test for a new rule and using the NexGen burner for present requirements- we are going to try to get the NexGen burner as good as we can, but we are not going to hold up the release of the AC.

Broke into two groups:

Cargo AC Task Group Discussion:

Kendall Krieg: We extensively discussed the test. Our next steps are to mark up the AC we have and work towards getting to where we want to be. Our plan is to get most of this done by the June 2013 meeting with the idea to submit the proposed AC in July or August. We will probably set up some WebEx or telecom meetings to stay on track. Eidsmore: We want to get to a general definition of what liner material and parameters would be applicable. We are looking at reducing the amount and type of testing by doing this. We've added a 'holes and gaps' action to this work. We discussed backside burning and will continue to discuss this item. We made some progress when we were talking about standardizing supports – we've gone to a more general guidance on this.

Cargo Liner Test Task Group – T. Salter

Burner Discussion: working on developing the FRH. We will be using the cargo burner as the basis for the seat test. Park oil burner labs offered to run samples to obtain data to help make the transfer over to the sonic burner. Height of sonic burner – we will look into this further. We will look into how the FRH will have an impact on lowering the burner as well. We also discussed the changes that can be made in terms of switching over from the stator and turbulator setup for those who already have the burners running as far as costs, changes that need to be made, etc. If you already have a sonic burner, very minimal changes have to be made. There were some concerns regarding calibration numbers with the

sonic burner. Calibration numbers are not quite a predictor of test results with the sonic burner as it was with the Park burner. Grounded vs. non-grounded TCs – we will investigate this further.

Seat Cushion Task Group Summary – T. Salter

Leather seat cushions were discussed: types of restraints used, number of restraints, standardizing leather seat restraints, what's the best way of determining burn length especially on leather seats, measuring burn length was discussed, 17" rule needs to be more well-defined, Tim wants feedback on leather seat testing from any other labs that conduct these tests, adhesives on seat cushions, standardizing location of hook and loop on picture frame or three quarter cover cushions or where seam is on side or back of cushion.

Composite In-Flight Flammability Test Task Group – R. Ochs

Develop a standardized test method that is lab-scale for composite material. This test method is correlated from a hidden fire source which is the foam block. Hopefully, we will be able to use this test method to evaluate the flammability of other materials such as ducting, etc., but primarily we are now working on a test method for composites. We talked a lot about the application of the test method. This is something that was discussed in the ARAC. It is not up to the Task Group to determine this. Some people are now more interested in supplying materials to us for future testing.

Burnthrough Task Group – R. Ochs

Guidance for repairs of blankets was brought up. FAATC has not done anything like this. Discussion on how to determine burnthrough – a lot of people disagree with ¼" hole to determine burnthrough. We discussed labs providing videos of tests with strange/anomalous results.

Heat Flux Task Group – M. Burns

We discussed two topics: Minimum number of NIST data points in a Secondary Standard heat flux gauge calibration and Chapter HF conformity check list. TG will investigate including a statement in Chapter HF to describe minimum data points for NIST calibration service to be inclusive of 0, 1.5, 2.5, 3.5 W/cm^2. Conformity Checklist: Hank Lutz and co-workers will put together a package for next meeting.

OSU Task Group – M. Burns

OSU Pressure Data: A request was made for additional lab participation to gather more data. A small focus group will be then be formed to conduct round robin testing as a further research effort into this study. Positive heat release data points for the 2-minute total: We had a large number of people that said we should just keep positive numbers, but some believe we should keep both positive and negative heat release. Drip pan: 50-50 whether we should use it or not. One option: include statement that if a drip is noticed, the test would be invalid (without drip pan). SOPs: Ben Grogan (Boeing) and the TG expressed interest continuing the work Ben is doing. He will put together a package for the next meeting. Telecons may be planned as part of this effort. Checklist to support Chapter HR document: Mike has 80-90% of it completed, and he will distribute to the TG for their comments.

Radiant Panel Task Group – P. Cahill

Discussion Points: Position of TC, airflow check. We will create a Checklist based on the data from the original DOE that was done at Boeing. Pat was asked about 607 board and the non-refractory materials in the backer boards and what we can do with the rule right now (Kaowool M). It's not in the Handbook right now, but it will be in the new Workbook. We want to try to find out what went amiss in the latest RR.

Wiring Task Group – P. Cahill

There is some concern from labs about buying a new test panel or modifying their old one if this is not going to be the test. We will look at the vertical rig Rob presented for some preliminary testing to see if it works for the wiring tests. Right now there are no plans for a wire RR.

Evacuation Slide Test – P. Cahill (for D. Do)

A meeting was held at the FAATC in late February 2013 with two of the RR participants. Three materials were looked at in the RR. Pat showed results of Evacuation Slide RR2 – there are concerns over lab D failing all the samples. The general consensus was it may be due to an incorrect test setup. A review of the new evacuation slide test method was started. TSO-C69c – new test method could replace this TSO, but the TSO will remain. Discussion points: frequency of calibration and coil degradation were also discussed. Follow-up: all participants will review the new test method and make comments for possible inclusion into the document.

Flammability Modeling – Use in Research, Testing and Regulation Development – D. Slaton (Boeing)

Modeling use in transportation and building industry
Boeing CFD Duct Model Development
Dan reviewed the observations made from the FAATC Duct Research done by John Reinhardt. Dan Slaton worked with Boeing modeling experts to develop at CFD Model for ducting using the results of the ducting tests John Reinhardt conducted. Dan presented some potential future use and application of modeling in fire safety research: assessment/validation of experimental test results, performance assessment of design configurations, and certification: “flammability analysis”.

Study Regarding The Flammability of Contaminated Thermal/Acoustic Insulation – C. Lewis (TCCA)

RGW Cherry Associates in the UK has been commissioned to investigate contamination of thermal/acoustic insulation. Objective: ascertain fire safety risk of accumulated dust and lint on thermal/acoustic insulation and to determine mitigation method. Claude reviewed the Study Methodology: survey of in-service airplanes, test, and ascertain optimum cleaning intervals. Status: work is ongoing, testing started earlier this week, expect initial results at next Materials WG meeting. Several questions were presented to Claude: interest type of test that is being used, different regional differences related to type of clothing predominantly worn by passengers in that region.

ARAC Report:

The URL Materials Flammability Working Group Report for the ARAC TAEIG is:
http://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information/documentID/942

Additional Discussion/Next Meeting:

The next meeting will be hosted by Magnesium Elektron in Manchester, UK, June 19-20, 2013. The information is available at www.fire.tc.faa.gov.